

FIG. 1A

gggcaggaagacggcgctgcccggaggagc																			-153
ggggcgggcgggcgcgcgggggagcgggcggcgggcgggagccaggccccgggcgggggcgggggcggcggggccag																			-77
aagagggcgggcgggccgcgctccggccggtctgcggcggttggccttggctttggctttggcggcggcggtggagaag																			-1
ATG	CTG	CAG	TCC	CTG	GCC	GGC	AGC	TCG	TGC	GTG	CGC	CTG	GTG	GAG	CGG	CAC	CGC	TCG	57
M	L	Q	S	L	A	G	S	S	C	V	R	L	V	E	R	H	R	S	19
GCC TGG TGC TTC GGC TTC CTG GTG CTG GGC TAC TTG CTC TAC CTG GTC TTC GGC GCA																			114
A	W	C	F	G	F	L	V	L	G	Y	L	L	Y	L	V	F	G	A	38
GTG GTC TTC TCC TCG GTG GAG CTG CCC TAT GAG GAC CTG CTG CGC CAG GAG CTG CGC																			171
V	V	F	S	S	V	E	L	P	Y	E	D	L	L	R	Q	E	L	R	57
AAG CTG AAG CGA CGC TTC TTG GAG GAG CAC GAG TGC CTG TCT GAG CAG CAG CTG GAG																			228
K	L	K	R	R	F	L	E	E	H	E	C	L	S	E	Q	Q	L	E	76
CAG TTC CTG GGC CGG GTG CTG GAG GCC AGC AAC TAC GGC GTG TCG GTG CTC AGC AAC																			285
Q	F	L	G	R	V	L	E	A	S	N	Y	G	V	S	V	L	S	N	95
GCC TCG GGC AAC TGG AAC TGG GAC TTC ACC TCC GCG CTC TTC TTC GCC AGC ACC GTG																			342
A	S	G	N	W	N	W	D	F	T	S	A	L	F	F	A	S	T	V	114
CTC TCC ACC ACA GGT TAT GGC CAC ACC GTG CCC TTG TCA GAT GGA GGT AAG GCC TTC																			399
L	S	T	T	G	Y	G	H	T	V	P	L	S	D	G	G	K	A	F	133
TGC ATC ATC TAC TCC GTC ATT GGC ATT CCC TTC ACC CTC CTG TTC CTG ACG GCT GTG																			456
C	I	I	Y	S	V	I	G	I	P	F	T	L	L	F	L	T	A	V	152
GTC CAG CGC ATC ACC GTG CAC GTC ACC CGC AGG CCG GTC CTC TAC TTC CAC ATC CGC																			513
V	Q	R	I	T	V	H	V	T	R	R	P	V	L	Y	F	H	I	R	171
TGG GGC TTC TCC AAG CAG GTG GTG GCC ATC GTC CAT GCC GTG CTC CTT GGG TTT GTC																			570
W	G	F	S	K	Q	V	V	A	I	V	H	A	V	L	L	G	F	V	190
ACT GTG TCC TGC TTC TTC TTC ATC CCG GCC GCT GTC TTC TCA GTC CTG GAG GAT GAC																			627
T	V	S	C	F	F	F	I	P	A	A	V	F	S	V	L	E	D	D	209

FIG. 1B-1

TGG AAC TTC CTG GAA TCC TTT TAT TTT TGT TTT ATT TCC CTG AGC ACC ATT GGC CTG	684
W N F L E S F Y F C F I S L S T I G L	228
GGG GAT TAT GTG CCT GGG GAA GGC TAC AAT CAA AAA TTC AGA GAG CTC TAT AAG ATT	741
G D Y V P G E G Y N Q K F R E L Y K I	247
GGG ATC ACG TGT TAC CTG CTA CTT GGC CTT ATT GCC ATG TTG GTA GTT CTG GAA ACC	798
G I T C Y L L L G L I A M L V V L E T	266
TTC TGT GAA CTC CAT GAG CTG AAA AAA TTC AGA AAA ATG TTC TAT GTG AAG AAG GAC	855
F C E L H E L K K F R K M F Y V K K D	285
AAG GAC GAG GAT CAG GTG CAC ATC ATA GAG CAT GAC CAA CTG TCC TTC TCC TCG ATC	912
K D E D Q V H I I E H D Q L S F S S I	304
ACA GAC CAG GCA GCT GGC ATG AAA GAG GAC CAG AAG CAA AAT GAG CCT TTT GTG GCC	969
T D Q A A G M K E D Q K Q N E P F V A	323
ACC CAG TCA TCT GCC TGC GTG GAT GGC CCT GCA AAC CAT TGA gcgtaggatttgttgcatt	1030
T Q S S A C V D G P A N H *	337
atgctagagcaccaggggtcaggggtgcaaggaagaggcttaagtatgttcattttttatcagaatgcaaaagcgaaaa	1106
ttatgtcactttaagaaatagctactgtttgcaatgtcttattaaaaaacaacaaaaaaagacacatggaacaaag	1182
aagctgtgacccagcaggatgtctaatatgtgaggaaatgagatgtccacctaaaattcatatgtgacaaaatta	1258
tctcgaccttacataggaggagaataacttgaagcagtatgctgctgtggttagaagcagattttatacttttaact	1334
ggaaactttgggggtttgcatttagatcatttagctgatggctaaatagcaaaattttatatttagaagcaaaaaaaa	1410
aaagcatagagatgtgttttataaataggtttatgtgtactggtttgcatgtacccacccaaaatgattattttg	1486
gagaatctaagtcaaactcactattttataatgcataggtaaccattaactatgtacatataaagtataaatatgtt	1562
tatattctgtacatatggtttaggtcaccagatcctagtgtagttctgaaactaagactatagatattttgtttct	1638
tttgatttctctttataactaaagaatccagagttgctacaataaaataaggggaataataaaaaaaaaaaaaa	1712

FIG. 1B-2

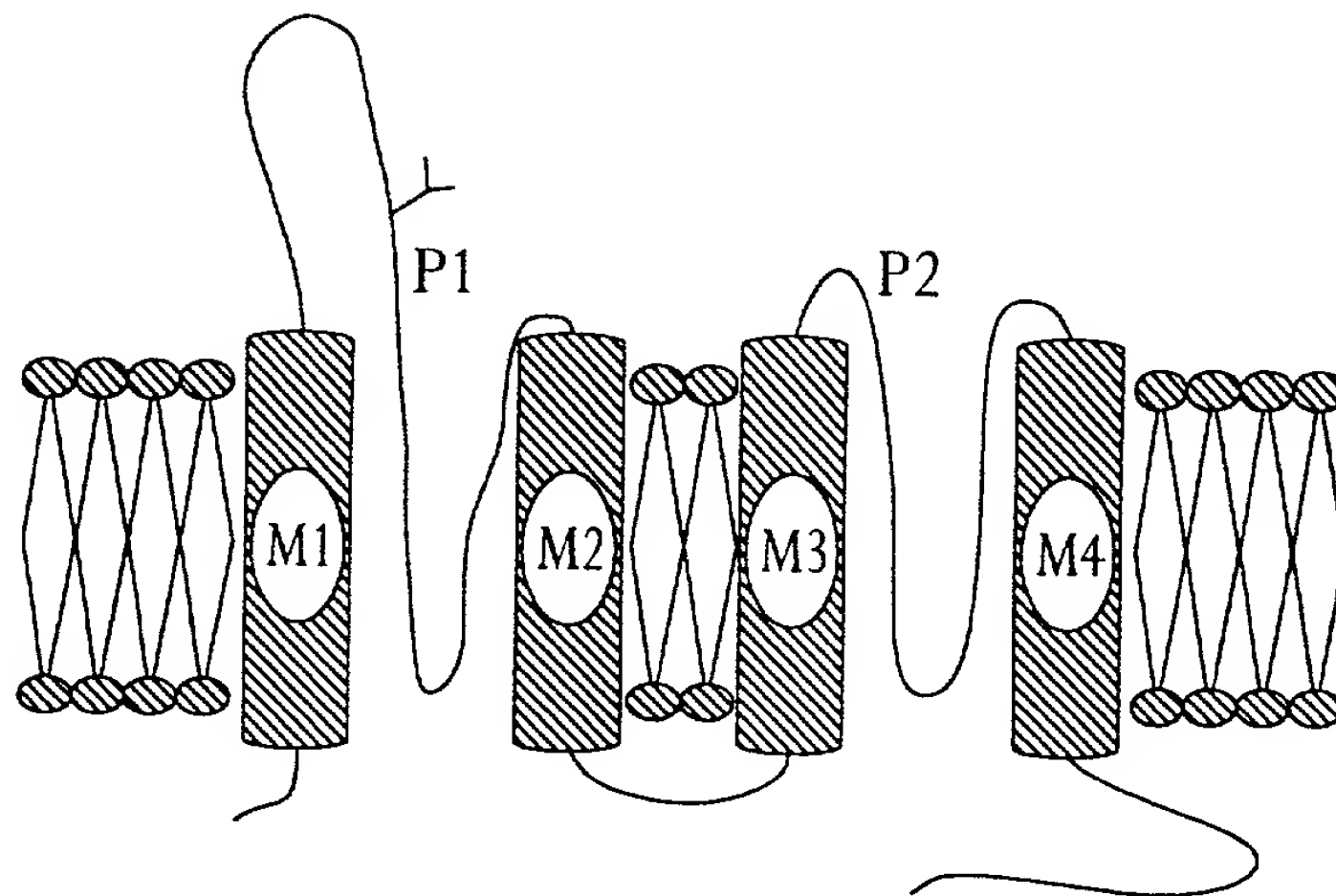
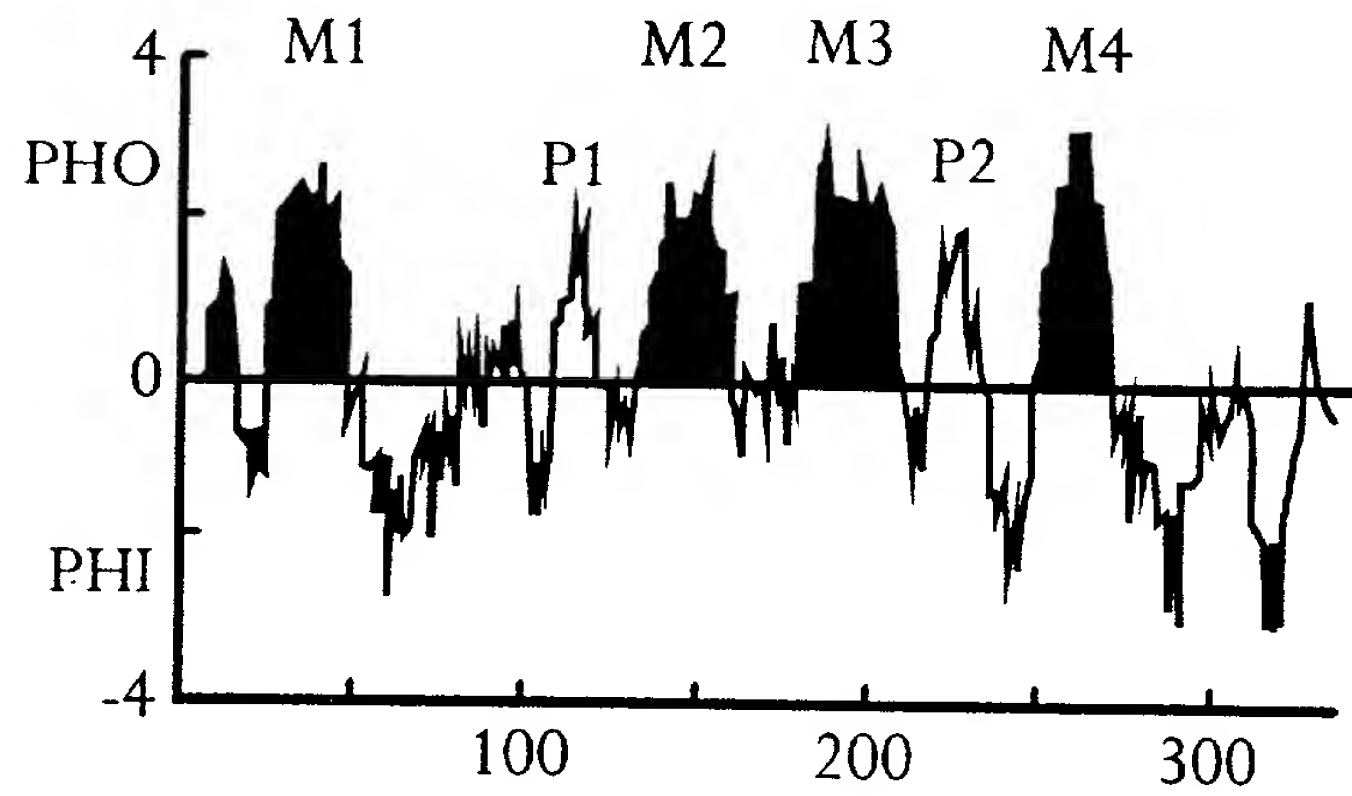


FIG. 1C

	1	14	27
TWIK-1 P1	F	T	S
TWIK-1 P2	E	L	S
TOK1 P2	Y	F	N
TOK1 P1	Y	G	N
Slo	Y	W	T
Shaker	I	P	D
Shab	I	P	E
Shal	I	P	A
Shaw	I	P	L
KAT1	Y	V	T
AKT1	Y	V	T
eag	Y	V	T
ROMK1	M	T	S
IRK1	F	T	A
GIRK1	F	P	S

FIG. 2A

TWIK-1	1	MLOSLAGSSCVREVE-----RHRSWCF--GF-----LVLGY
f17c8	1	MYTDEGEYSGD TDHGGSTMOKMSPNTRONFRONVNVVVCLSAATL--
M110-2	1	MTVSMEENSKIOMLSATSKDKKVATDRSLLNKYHLGPIALHTGLVLS
TWIK-1	31	LEYLWFGAVVFSVELPYEDLLRQE-----LRKLKRRFLEEHEC---L
f17c8	47	LVENLIGAGIF-----YLAETONSSES
M110-2	49	VTYALGGAYEFLSIEHP-EELKRREKAIREFQDLKQOFMGNITSGIEN
TWIK-1	71	SEQDEQLGRVL-----EASNIGVSVLSNASGNWNW--DETSALF
f17c8	69	LNENSEV--SKCLHNLPIGGKIEMKSKLGKCLTKSSRIDGFGKATF
M110-2	96	SEQSEELTKKELMLEDAHNAHAEEYFFLNREIPKDMW--TESSALV
P1		
TWIK-1	110	EASTVSTTG YGHTVPESDGGKAFCIL-YSVVGIPFTLLELTAVVORI
f17c8	115	ESWTEYSTVGYGSEPHSTLGRYTIF-YSLLMIPVFIAFKFEFGTFL
M110-2	142	ETTTTVPVGYGYIEPVSAAYGR-MCLDAYALLGIPLTTLVTMAETGKFA
TWIK-1	157	TVH---VTRRPVL-----YEHWRWGESKOVVAIVHAVLLGEVTVSCFF
f17c8	162	AHFLVVVSNRTRLAVKKAYYKES-QNPENAETPSNSLOHDYIFLSSI
M110-2	189	AQL---VTR-----W-FGDNNMAIPAAIFV-----CLL
P2		
TWIK-1	197	FL-PAAVFS--VL--EDDWNELESFYFCFISESTIGEGDYVPGEYN
f17c8	209	LLCSLSSLSAELSSSIENISYLSVYEGEITMFLIGIGDIVPTN---
M110-2	213	FAYPLVVGf---LLCSTSNITYLDSVYFSITSIFTIGFGDLTP-----
TWIK-1	239	QKFRDYKDGFCYLELGLIAMVDETFC-----EELKKEP-----
f17c8	254	-----LWFSGYCMLFLISDVLSNOIEYFCQARVRYFFHILARKEL
M110-2	253	-----DMNVTHMVLELAVGVILVTITLDIVA---AEMIDRVHYMGHVG
TWIK-1	278	-----KMEYVKKDKDEDVHTEHDOL-----SFSSITDOAAGMKED
f17c8	295	LLRE-EDDGFOLETTVSLOHEPIINSQCMPSL-----VLDCEKEELDND
M110-2	294	KAKELAGKMFOLAQSNNKOGLVSGVGOLHALAREGMIVGREEVDKIQ
TWIK-1	315	QKONEPFVAT-----QSSACVDGPANH----
f17c8	338	EKLISSEST-----
M110-2	342	EDGLIAFSPDVMGLEFMDTLSIYSRRSRRSAENSARNLFLS

FIG. 2B

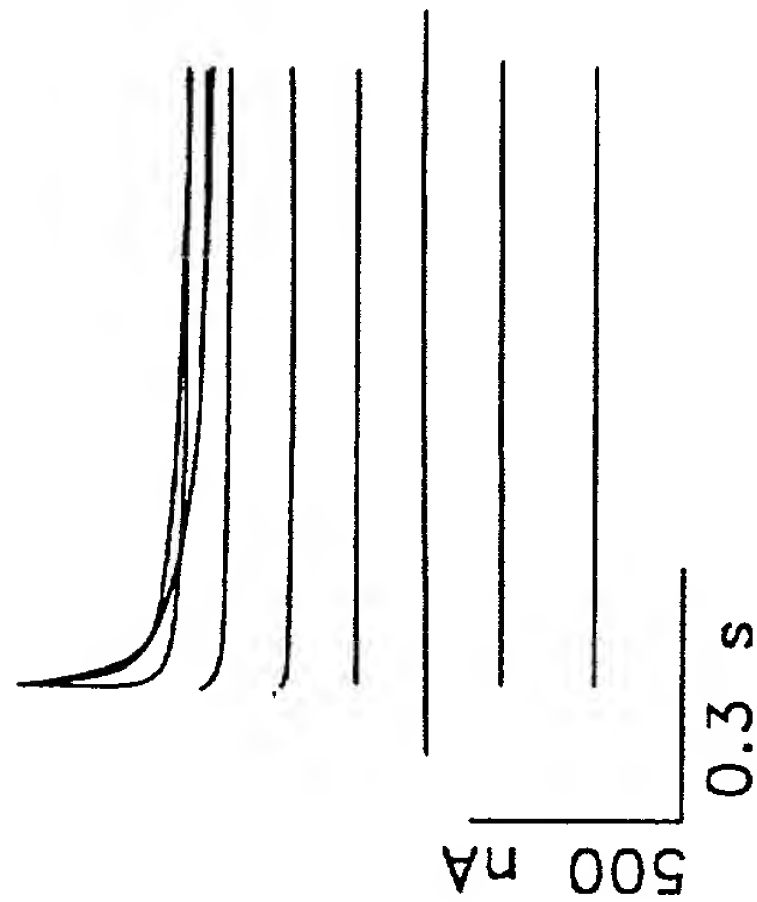


FIG. 3A

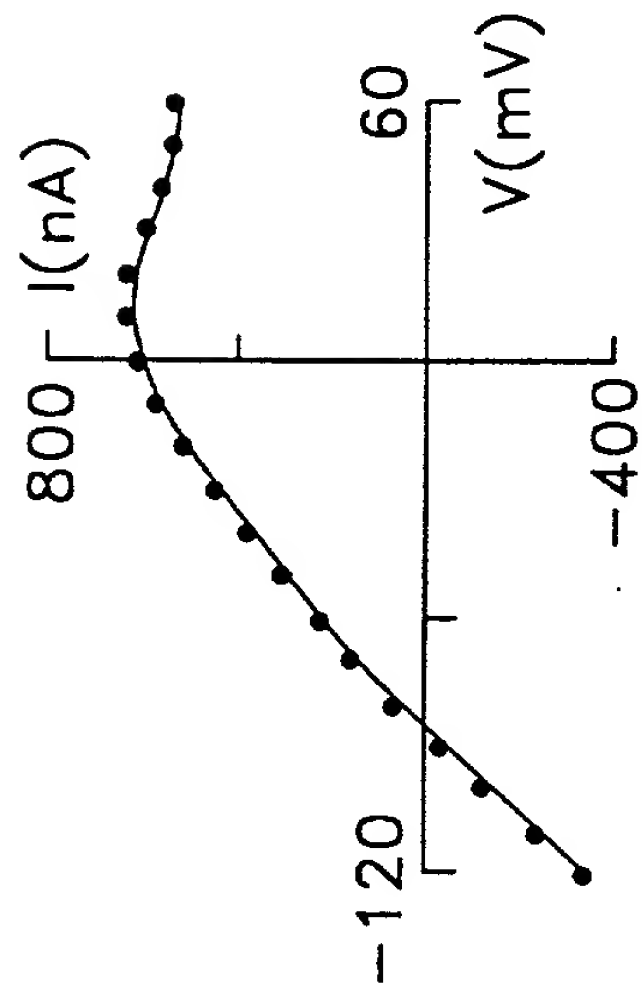


FIG. 3B

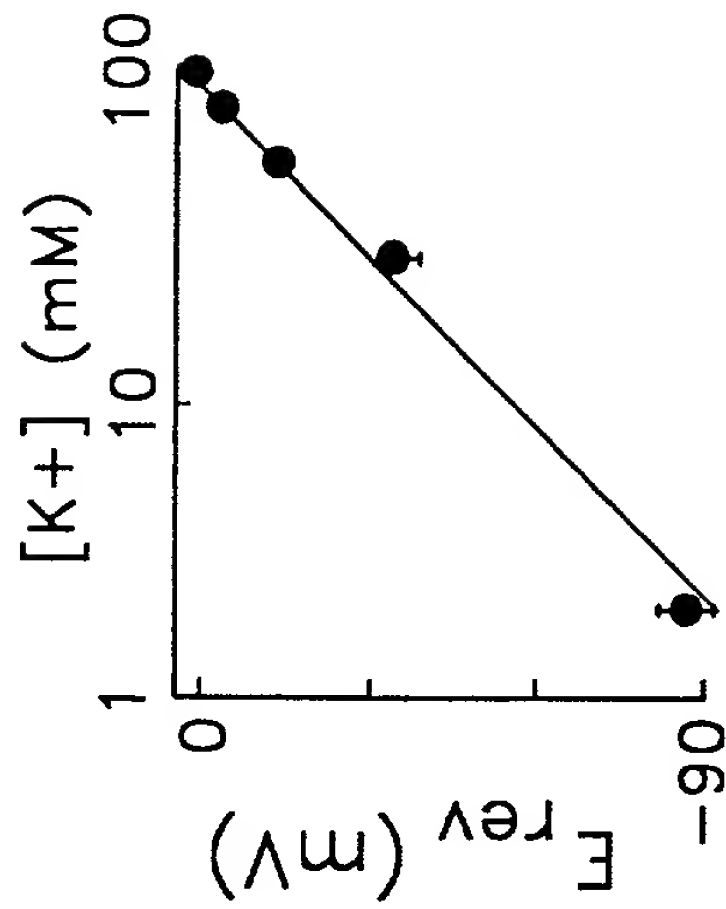


FIG. 3C

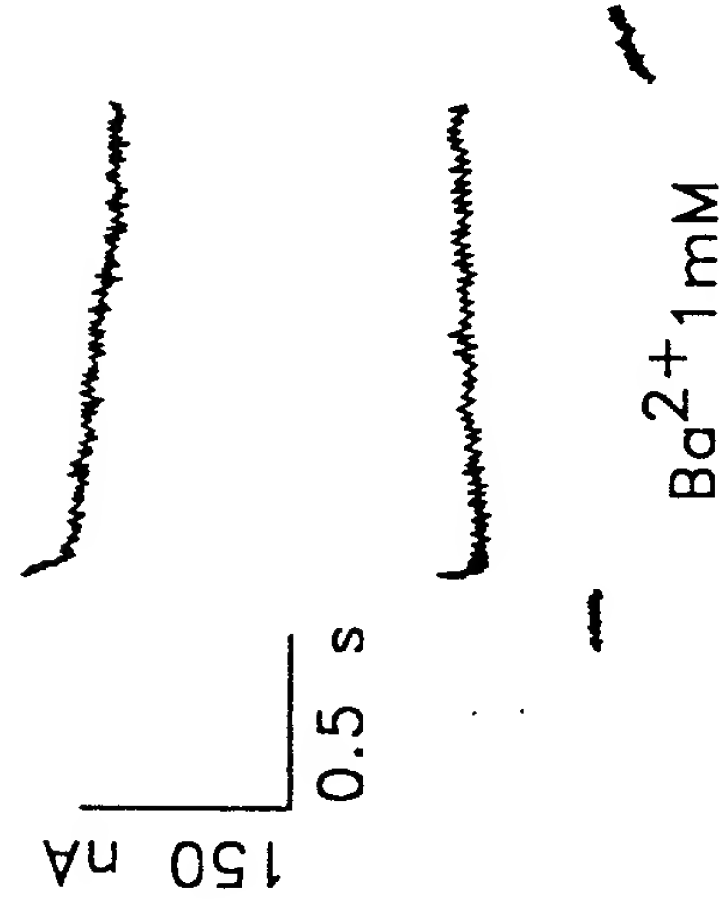


FIG. 3D

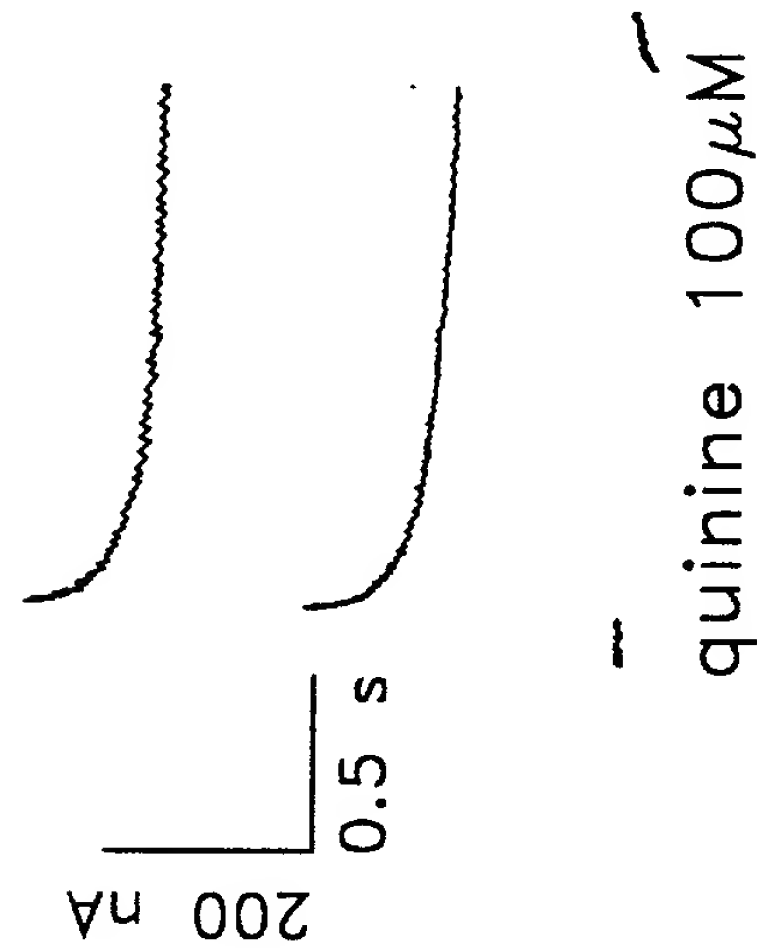


FIG. 3E

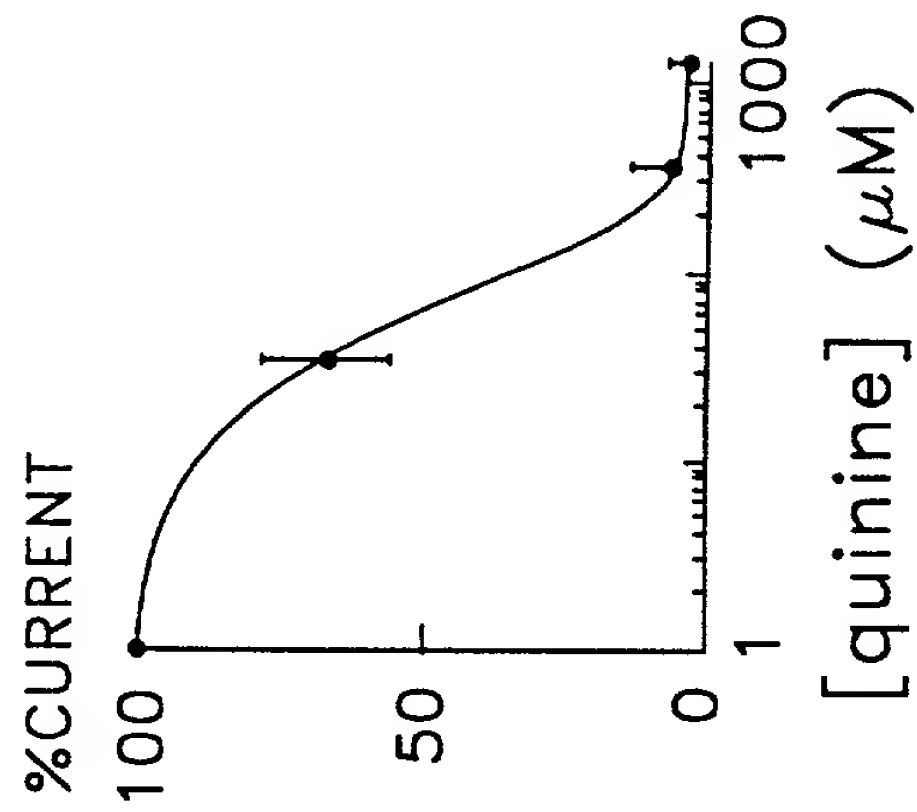


FIG. 3F

FIG. 4A

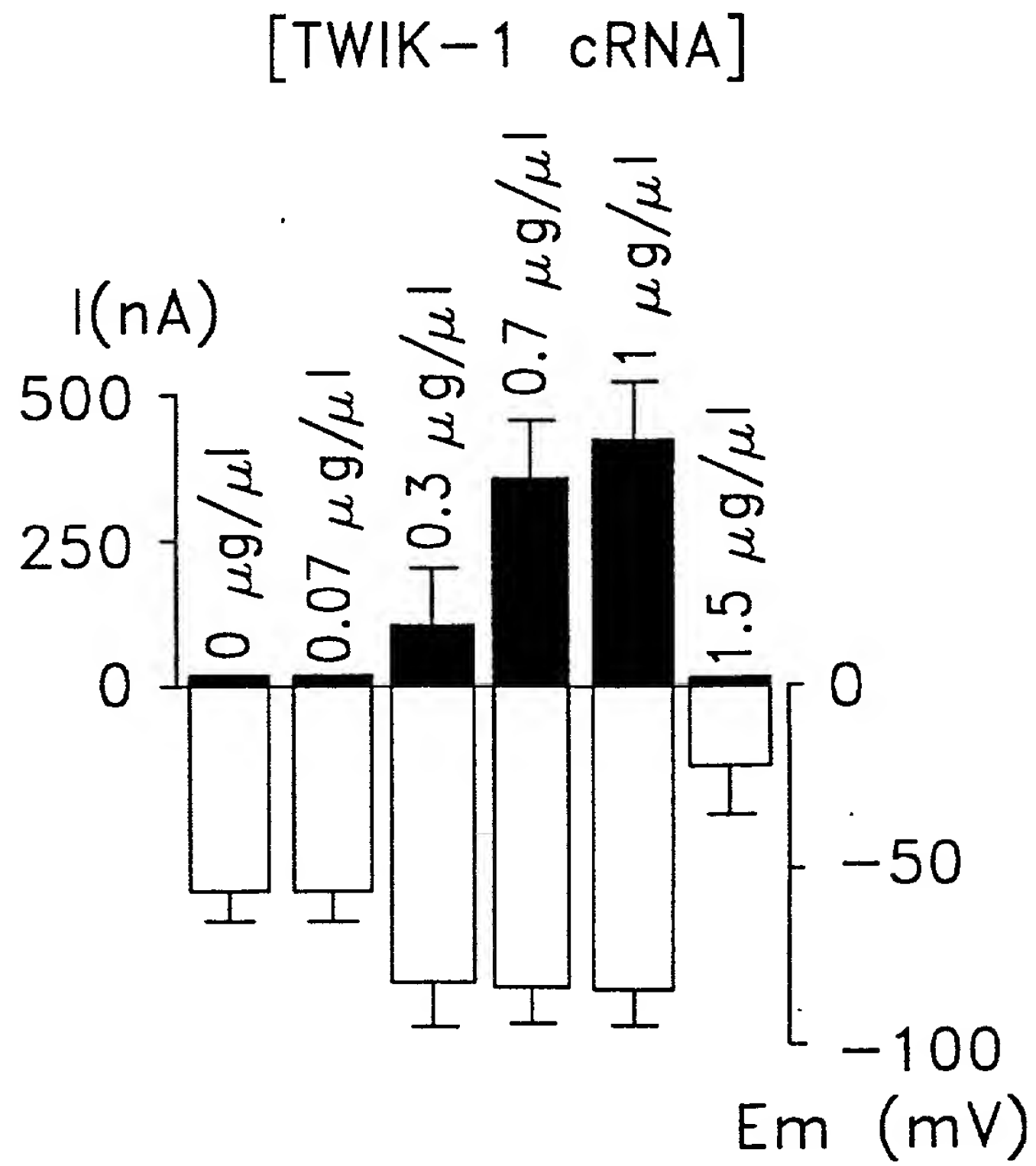


FIG. 4B

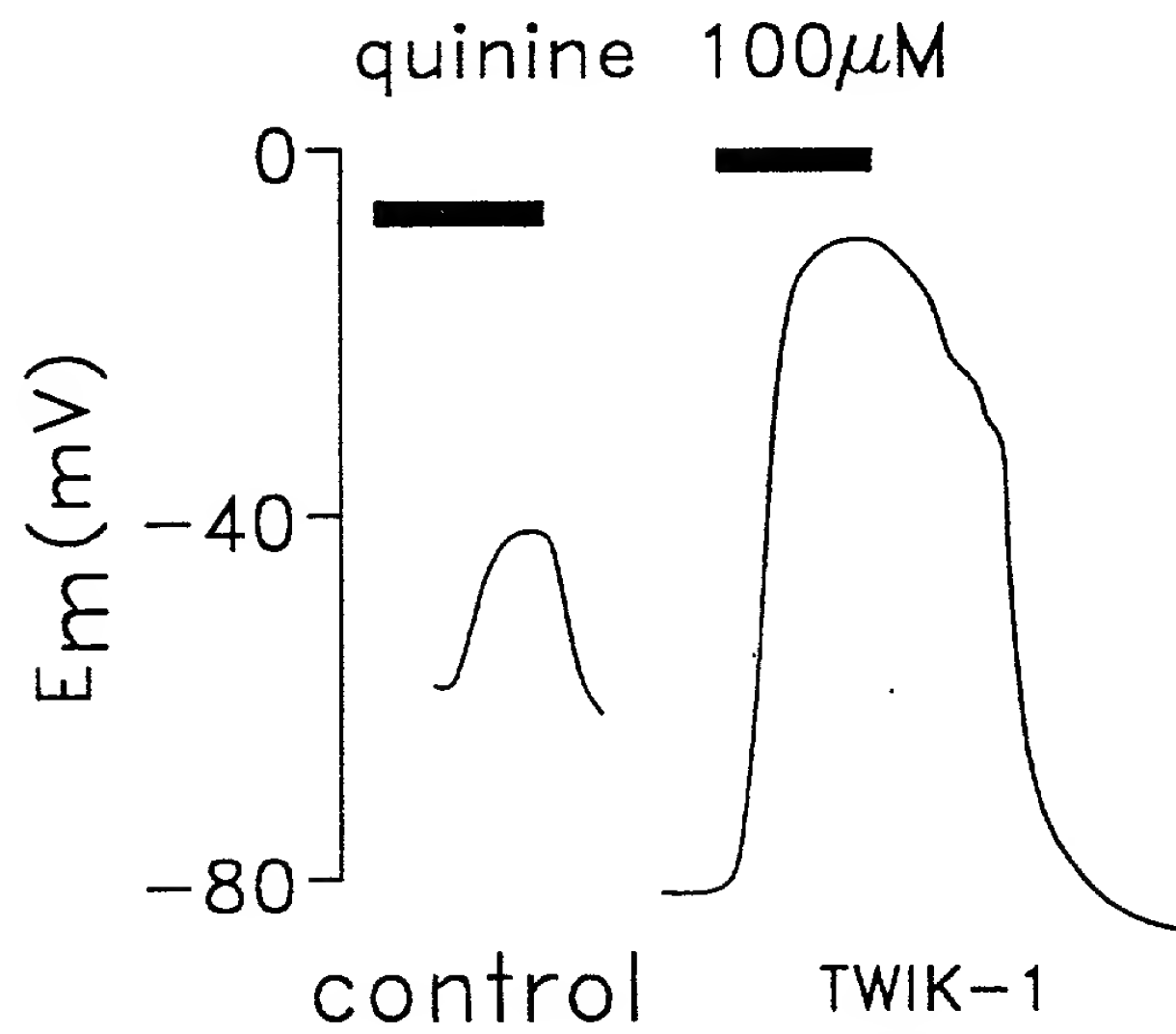
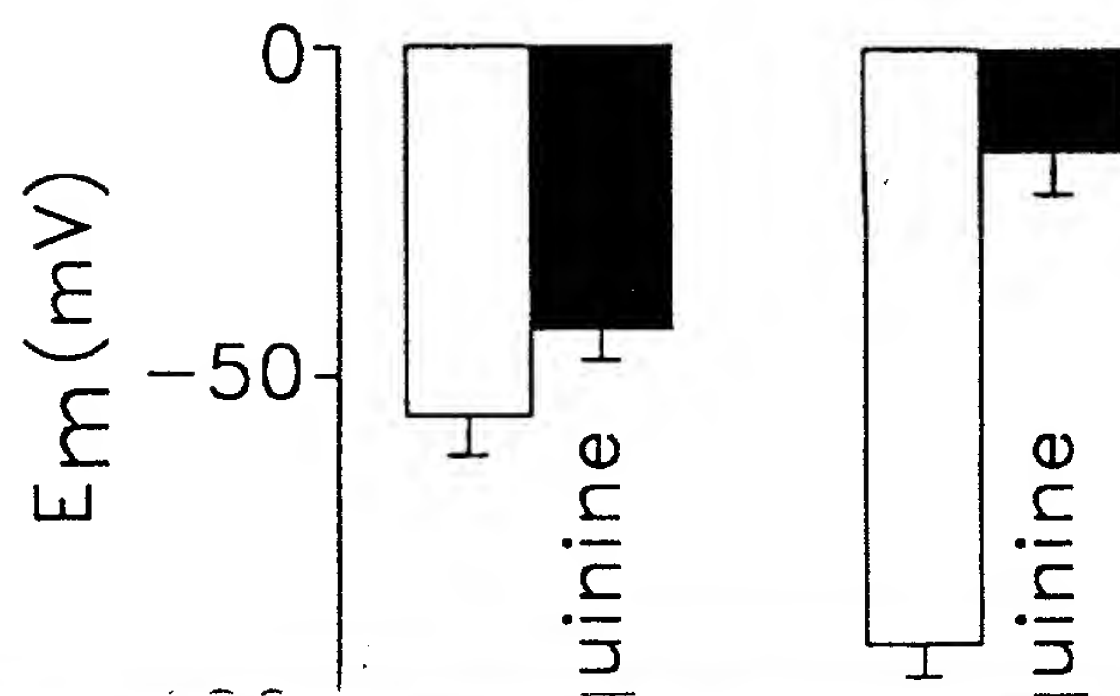


FIG. 4C



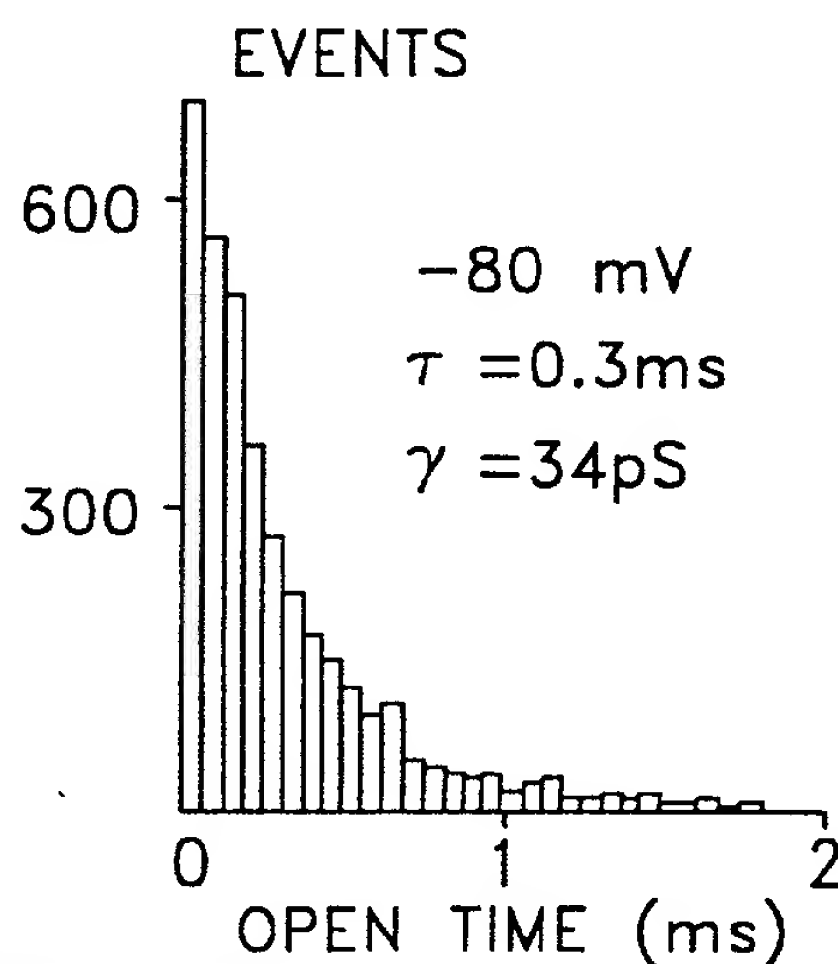
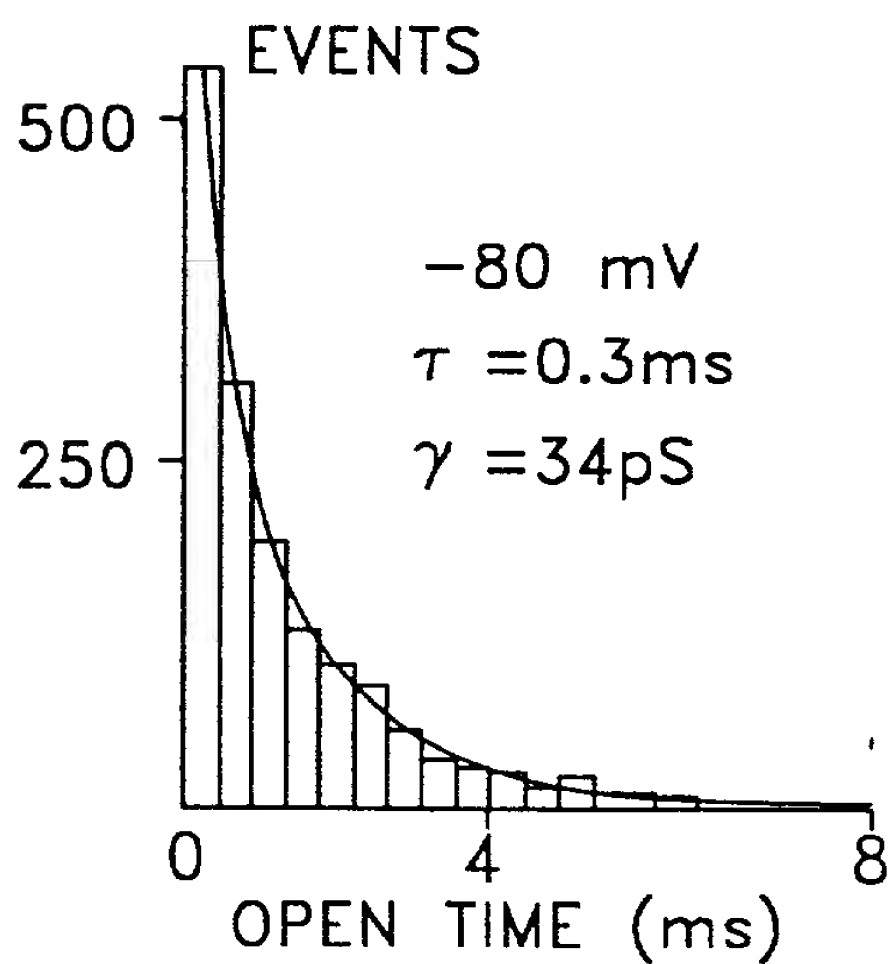


FIG 50

FIG 5D

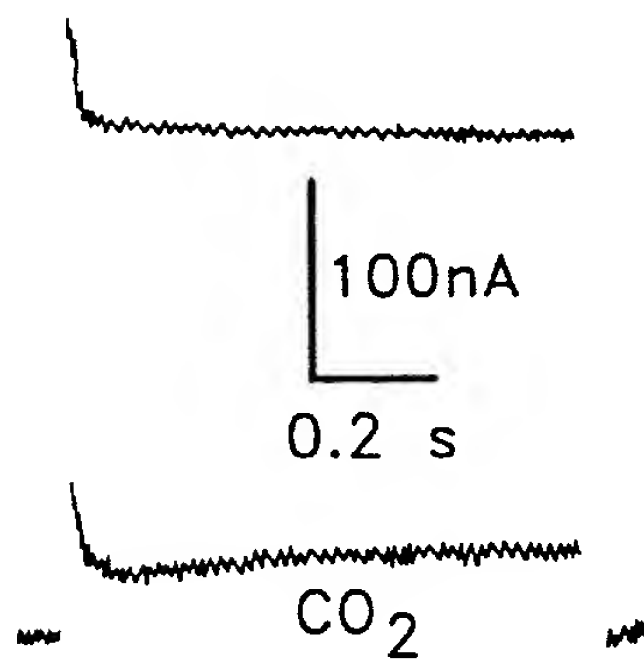


FIG. 6A

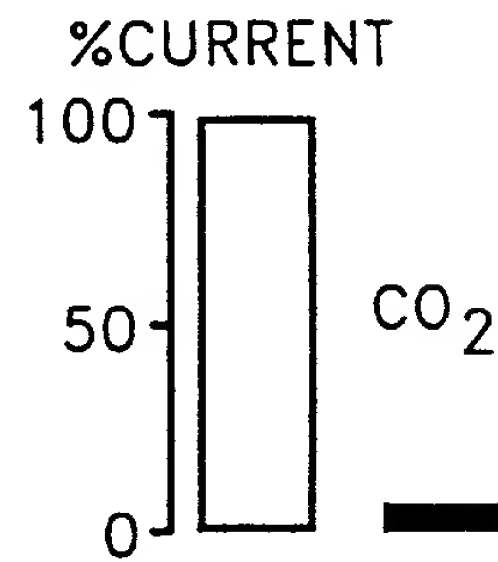


FIG. 6B

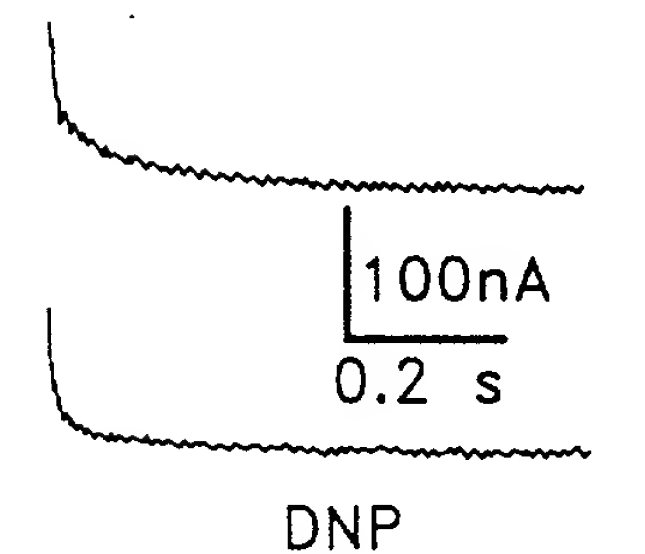


FIG. 6C

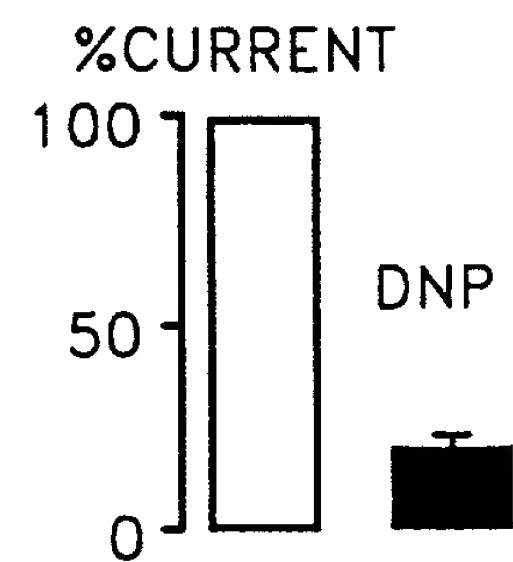


FIG. 6D

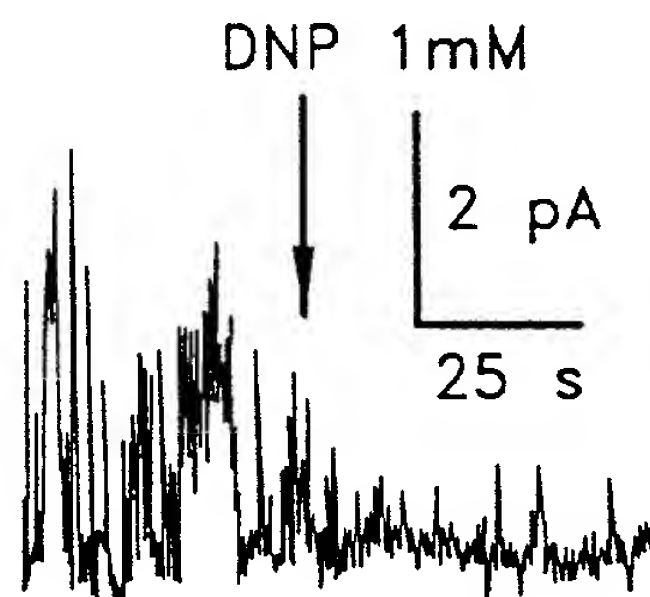


FIG. 6E

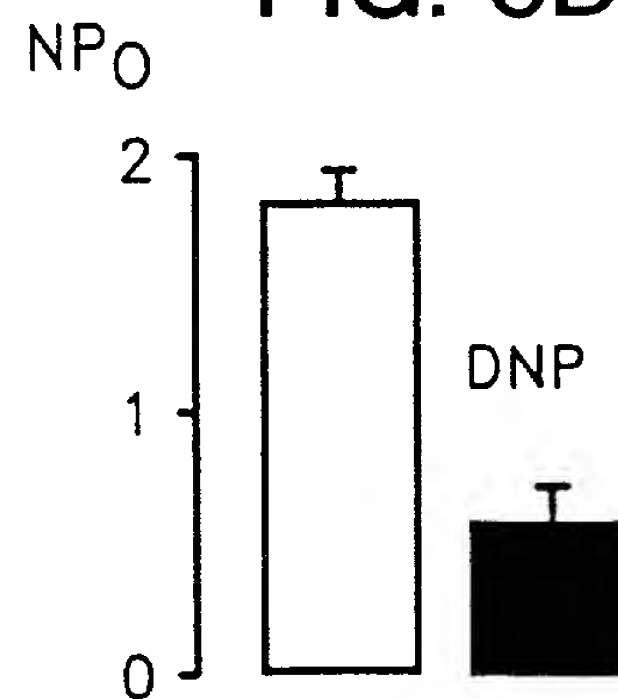


FIG. 6F

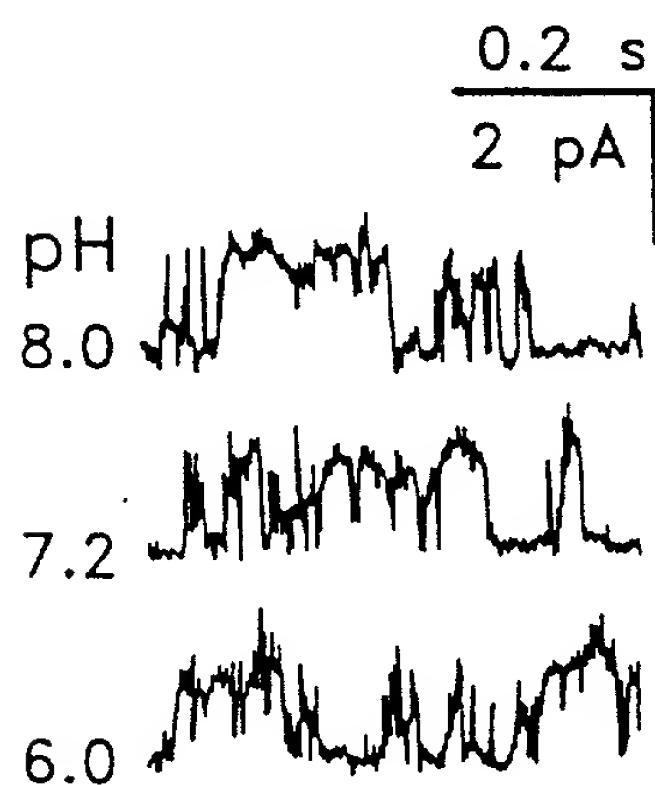


FIG. 6G

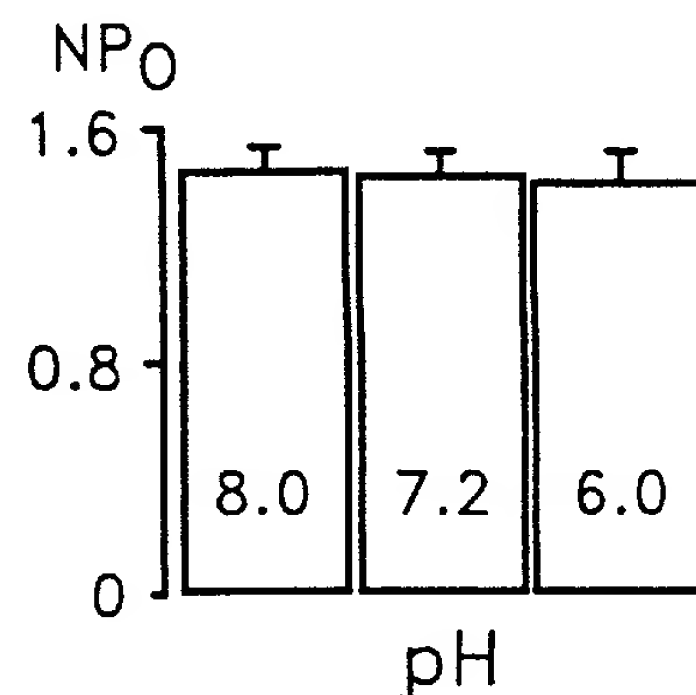


FIG. 6H

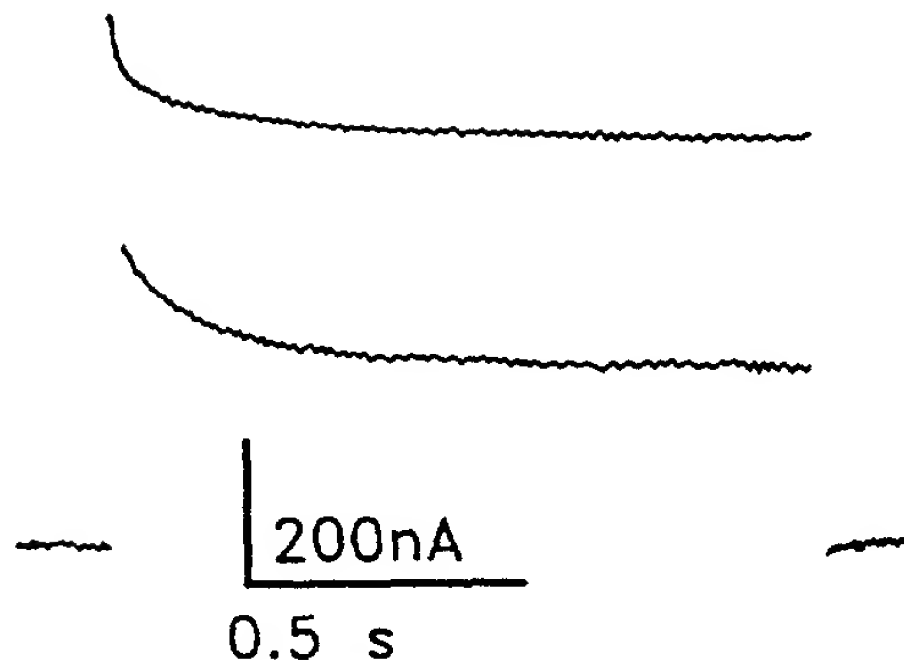


FIG. 7A

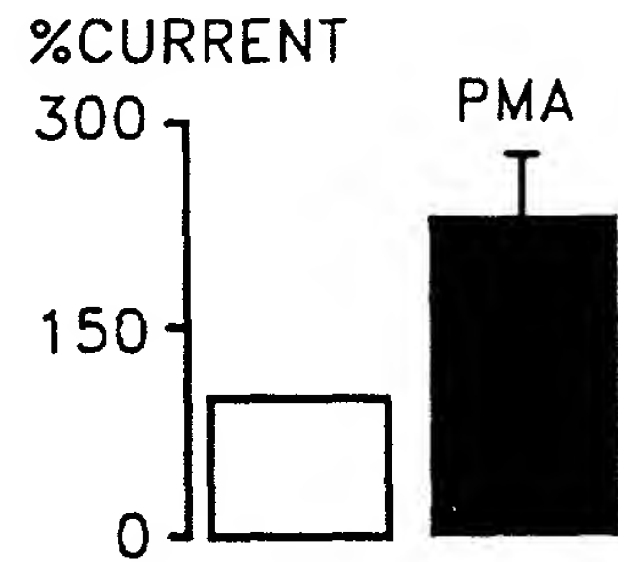


FIG. 7B

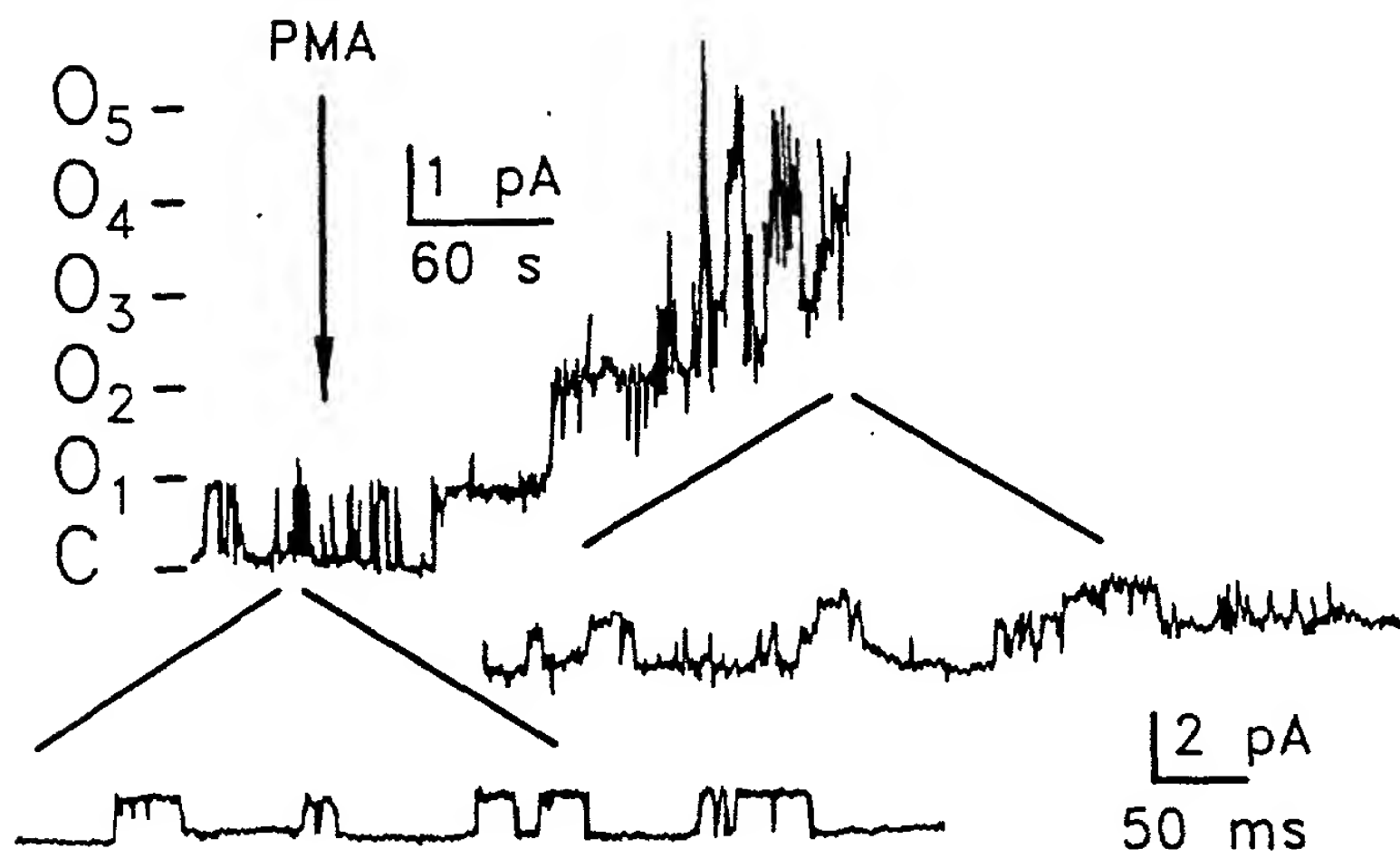


FIG. 7C

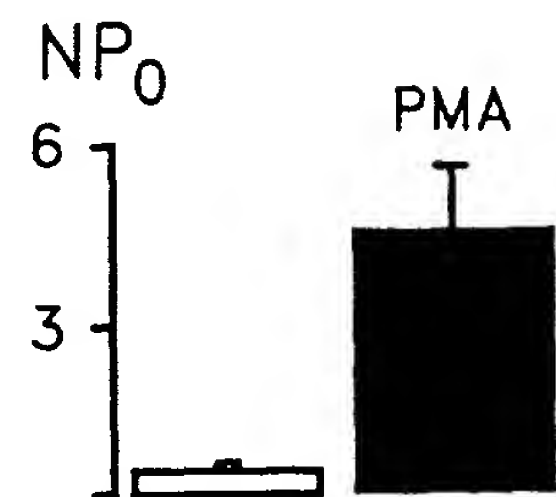


FIG. 7D

tgccctgcgcgatagcgggcgagcgcgagccatgccccagggcgctccg -77
 gggcagcagcagcggcgggccggggccgatgcgcgggccggggcgccggggggcgggcgggcccgggcggggacg -1

ATG AAG CGG CAG AAC GTG CGC ACG CTG GCG CTC ATC GTG TGC ACC TTC ACC TAC CTG 57
 M K R Q N V R T L A L I V C T F T Y L 19
 E N V R T L A L I V C T F T Y L

CTG GTG GGC GCC GCG GTC TTC GAC GCG CTG GAG TCG GAG CCC GAG CTG ATC GAG CGG 114
 L V G A A V F D A L E S E P E L I E R 38
 L V G A A V F D A L E S E P E M I E R

CAG CGG CTG GAG CTG CGG CAG CAG GAG CTG CGG GCG CGC TAC AAC CTC AGC CAG GGC 171
 Q R L E L R Q Q E L R A R Y N L S Q G 57
 Q R L E L R Q L E L R A R Y N L S E G
 *

GGC TAC GAG GAG CTG GAG CGC GTC GTG CTG CGC CTC AAG CCG CAC AAG GCC GGC GTG 228
 G Y E E L E R V V L R L K P H K A G V 76
 G Y E E L E R V V L R L K P H K A G V

CAG TGG CGC TTC GCC GGC TCC TTC TAC TTC GCC ATC ACC GTC ATC ACC ACC ATC GGC 285
 Q W R F A G S F Y F A I T V I T T I G 95
 Q W R F A G S F Y F A I T V I T T I G

TAC GGG CAC GCG GCA CCC AGC ACG GAT GGC GGC AAG GTG TTC TGC ATG TTC TAC GCG 342
 Y G H A A P S T D G G K V F C M F Y A 114
 Y G H A A P S T D G G K V F C M F Y A

CTG CTG GGC ATC CCG CTC ACG CTC GTC ATG TTC CAG AGC CTG GGC GAG CGC ATC AAC 399
 L L G I P L T L V M F Q S L G E R I N 133
 L L G I P L T L I M F Q S L G E R I N

ACC TTG GTG AGG TAC CTG CTG CAC CGC GCC AAG AAG GGG CTG GGC ATG CGG CGC GCC 456
 T L V R Y L L H R A K K G L G M R R A 152
 T E V R Y L L H R A K E G L G M R H A

GAC GTG TCC ATG GCC AAC ATG GTG CTC ATC GGC TTC TTC TCG TGC ATC AGC ACG CTG 513
 D V S M A N M V L I G F F S C I S T L 171
 E V S M A N M V L I G F V S C I S T L

TGC ATC GGC GCC GCC GCC TTC TCC CAC TAC GAG CAC TGG ACC TTC TTC CAG GCC TAC 570
 C I G A A A F S H Y E H W T F F Q A Y 190
 C I G A A A F S Y Y E E W T F F Q A Y

TAC TAC TGC TTC ATC ACC CTC ACC ACC ATC GGC TTC GGC GAC TAC GTG GCG CTG CAG 627
 Y Y C F I T L T T I G F G D Y V A L Q 209
 Y Y C F I T L T T I G F G D Y V A L Q

AAG GAC CAG GCC CTG CAG ACG CAG CCG CAG TAC GTG GCC TTC AGC TTC GTC TAC ATC 684
 K D Q A L Q T Q P Q Y V A F S F V Y I 228
 K D Q A L Q T Q P Q Y V A F S F V Y I

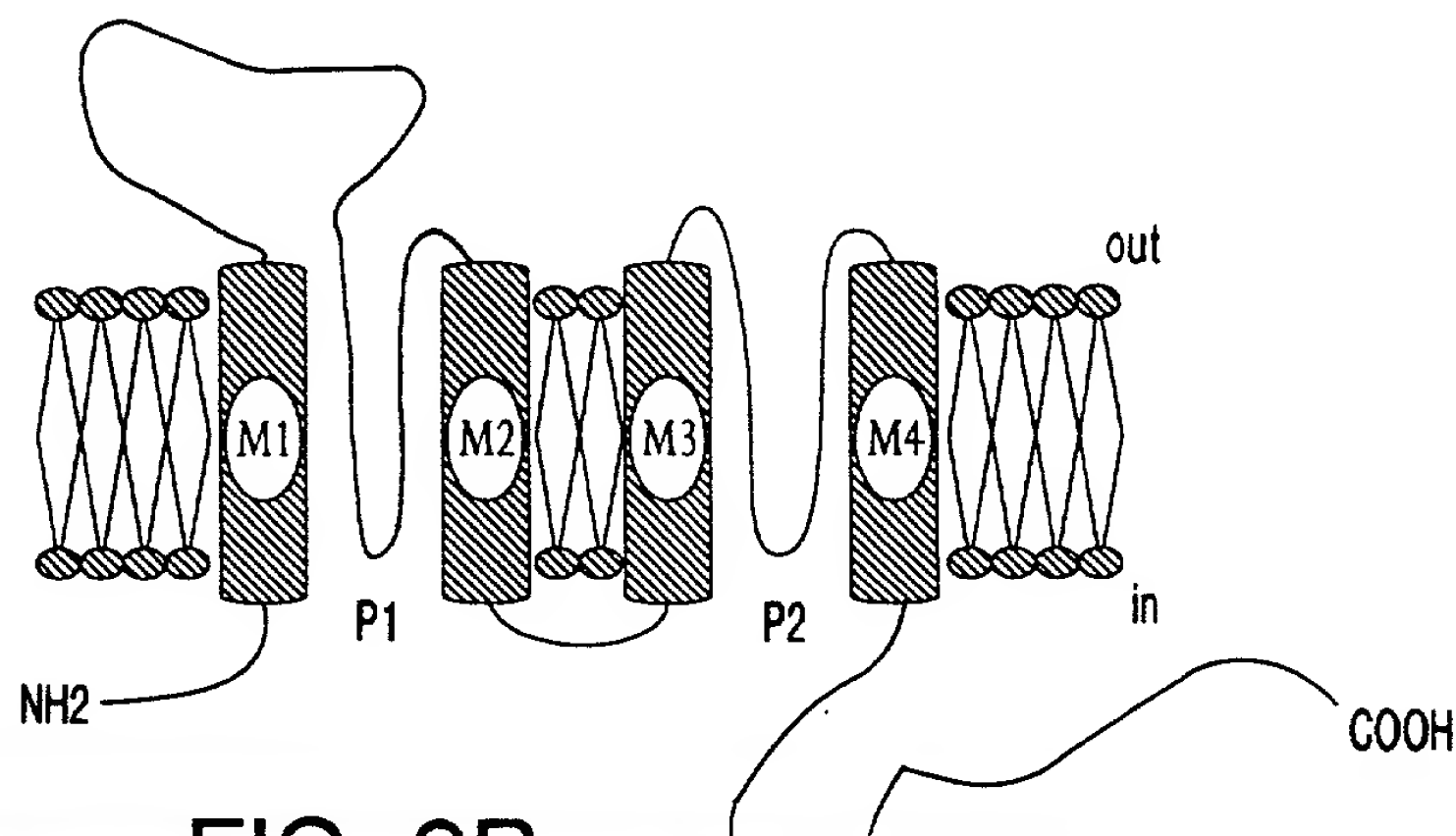
CTT ACG GGC CTC ACG GTC ATC GGC GCC TTC CTC AAC CTC GTG GTG CTG CGC TTC ATG 741
 L T G L T V I G A F L N L V V L R F M 247
 L T G L T V I G A F L N L V V L R F M

FIG. 8A

ACC	ATG	AAC	GCC	GAG	GAC	GAG	AAG	CGC	GAC	GCC	GAG	CAC	CGC	GCG	CTG	CTC	ACG	CGC	798							
T	M	N	A	E	D	E	K	R	D	A	E	H	R	A	L	L	T	R	266							
T	M	N	A	E	D	E	K	R	D	A	E	H	R	A	L	L	T	H								
AAC	GGG	CAG	GCG	GGC	GGC	GGC	GGA	GGG	GGT	GGC	AGC	GCG	CAC	ACT	ACG	GAC	ACC	GCC	855							
N	G	Q	A	G	G	G	G	G	G	G	S	A	H	T	T	D	T	A	285							
N	G	Q	A	V	G	L	G	G	L	S	C	L	S	G	S	L	G	D								
TCA	TCC	ACG	GCG	GCA	GCG	GGC	GGC	GGC	GGC	TTC	CGC	AAC	GTC	TAC	GCG	GAG	GTG	CTG	912							
S	S	T	A	A	A	G	G	G	G	F	R	N	V	Y	A	E	V	L	304							
VRPRDPV	TC	AA	A	A	G	G	V	G	V	G	V	G	G	S	G	F	R	N	V	Y	A	E	V	L		
CAC	TTC	CAG	TCC	ATG	TGC	TCG	TGC	CTG	TGG	TAC	AAG	AGC	CGC	GAG	AAG	CTG	CAG	TAC	969							
H	F	Q	S	M	C	S	C	L	W	Y	K	S	R	E	K	L	Q	Y	323							
H	F	Q	S	M	C	S	C	L	W	Y	K	S	R	E	K	L	Q	Y								
TCC	ATC	CCC	ATG	ATC	ATC	CCG	CGG	GAC	CTC	TCC	ACG	TCC	GAC	ACG	TGC	GTG	GAG	CAG	1026							
S	I	P	M	I	I	P	R	D	L	S	T	S	D	T	C	V	E	Q	342							
S	I	P	M	I	I	P	R	D	L	S	T	S	D	T	C	V	E	H								
AGC	CAC	TCG	TCG	CCG	GGA	GGG	GGC	GGC	CGC	TAC	AGC	GAC	ACG	CCC	TCG	CGA	CGC	TGC	1083							
S	H	S	S	P	G	G	G	G	R	Y	S	D	T	P	S	R	R	C	361							
S	H	S	S	P	G	G	G	G	R	Y	S	D	T	P	S	H	P	C								
CTG	TGC	AGC	GGG	GCG	CCA	CGC	TCC	GCC	ATC	AGC	TCG	GTG	TCC	ACG	GGT	CTG	CAC	AGC	1140							
L	C	S	G	A	P	R	S	A	I	S	S	V	S	T	G	L	H	S	380							
L	C	S	G	T	Q	R	S	A	I	S	S	V	S	T	G	L	H	S								
CTG	TCC	ACC	TTC	CGC	GGC	CTC	ATG	AAG	CGC	AGG	AGC	TCC	GTG	TGA	ctgccccgagggacc				1200							
L	S	T	F	R	G	L	M	K	R	R	S	S	V	*					395							
L	A	A	F	R	G	L	M	K	R	R	S	S	V													
tggagcacctggggg																			cgcgggcggggg	gacccctgctggg	aggccaggagactg	ccccctgctgcctt	tctgcccagtg	1276		
ggaccccgcaacat																			cctcaccactctc	ccccagcacc	ccccatctccgact	gtgcctgcttgca	caccagccggca	1352		
ggaggccgggctct																			gaggacccctggg	gccccatcgga	gcccctgcaaatt	ccgagaaatgtg	aaacttggtggg	1428		
tcaggggaggaaag																			gcagaagctggg	agcctcccttcc	ctttgaaaatcta	agaagctcccag	tcctcagagacc	1504		
gctggtaccacac																			ccaccttcggag	gggacttcatgt	tccgtgtacgtt	tgcatctctatt	tatacctctgtc	1580		
gctaggtctccc																			accttcccttgg	ttccaaaagcc	agggtgtctat	gtccaagtcac	ccctactcagcc	1656		
ccttccctcatcc																			ccagctgtgtct	cccaacctcc	cttcgtgttgt	tttgcatggctt	tgagttatggag	1732		
gaaacccagcag																			tcctaaagctgg	tccccagaaag	caggacagaaag	aaggaggacagg	caggcaggcagg	1808		
gcgagctgggag																			gcaggagcggc	ctgtcagctct	gcagaatgg	tcgactggagg	ttcaagctaact	1884		
cagccacatttct																			catagcaggtag	gacttcagcctt	ccagacactgcc	ccttagaatctg	gaacagaagact	1960		
ctcaccataatt																			gctgataattac	ccactcttaa	atttgtcgagt	gatttttagc	ctctgaaaact	2036		
cactgattcctt																			tgagctcacaaa	acctacttag	gtcatcagggc	aggagttctc	actccattttac	2112		
gaatactgagg																			cctggacaggt	gaagtgaccag	agagcaaaaag	gcaaagggtgg	gggtgcagtggt	2188		
acctgtattcc																			caacacttttgg	aggctgaggtt	ggaggattgct	tgagcccagga	attcgagaccag	2264		
acatagtgag																			acccatctctac	aaaaataaaa	aataaccag	gtgtggtggc	acgtgcctggg	2340		
cttgggaggct																			gaggtgggagg	attgtttgag	cctgggaggt	cgaggctgtag	tgagccctgatt	2416		
ctccagcctgg																			gtgacagggca	agaccctgtc	tcaaaaaaaaa					2465

FIG. 8B

FIG. 9A



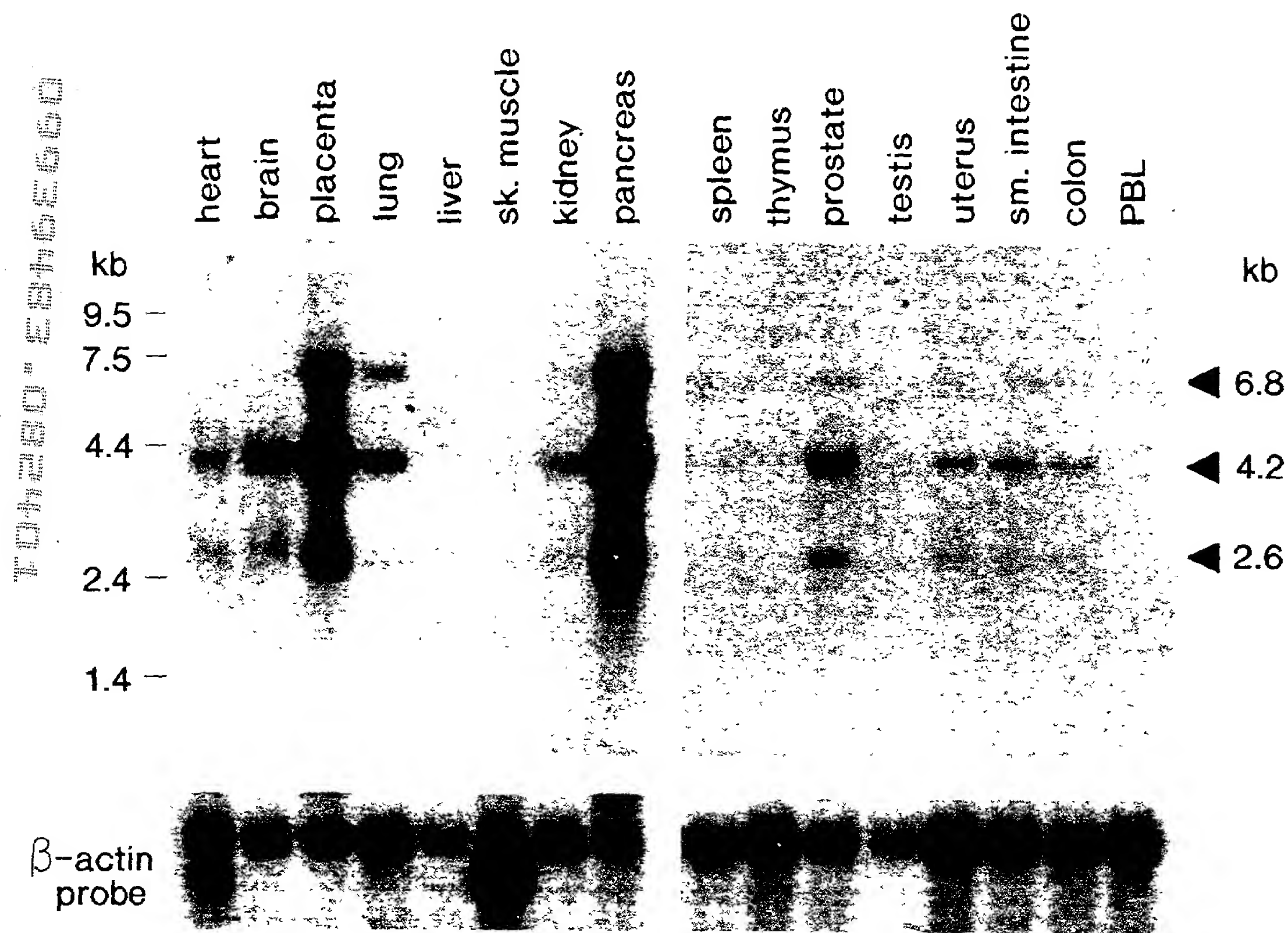


FIG. 10

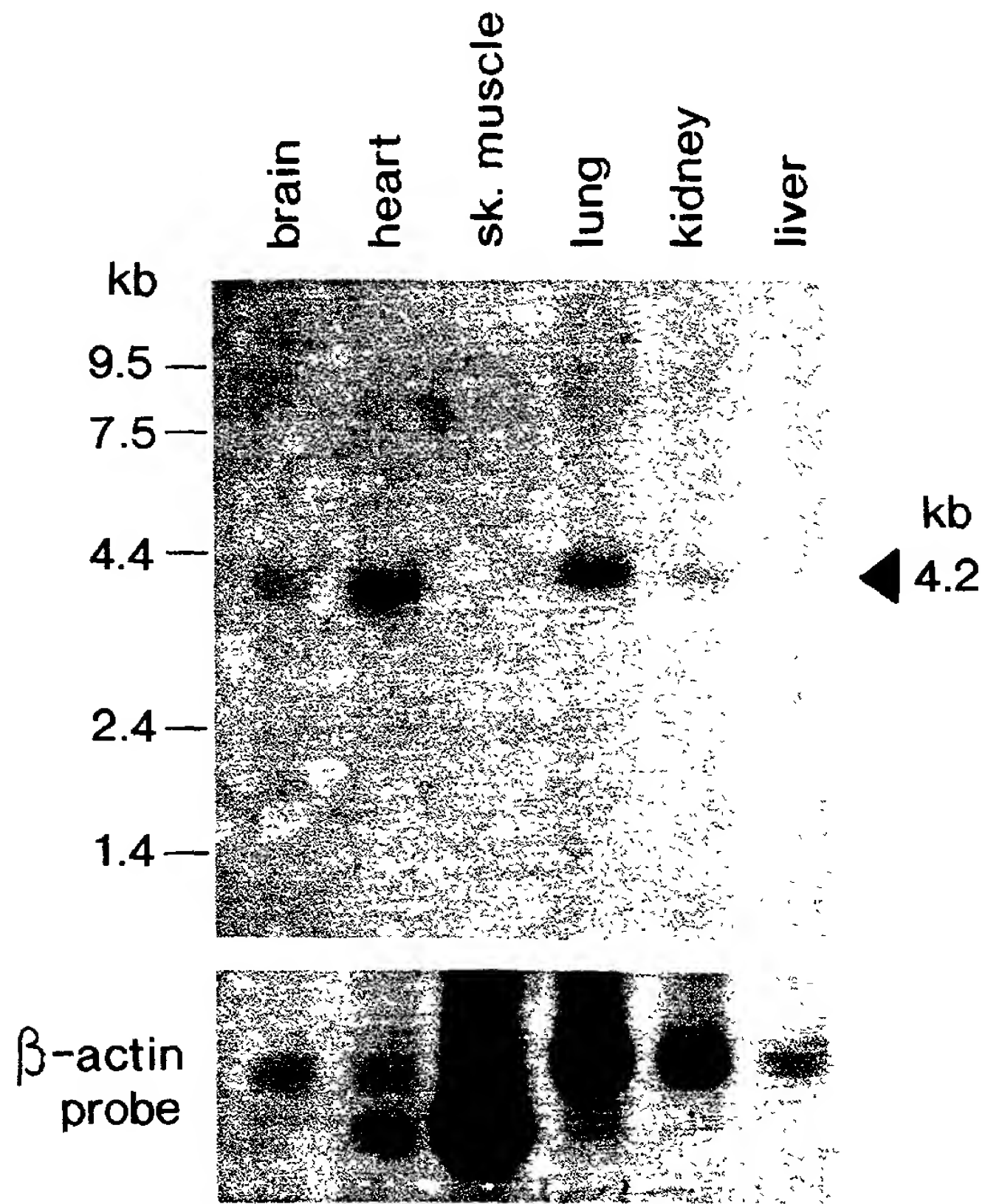


FIG. 11A

FIG. 11B

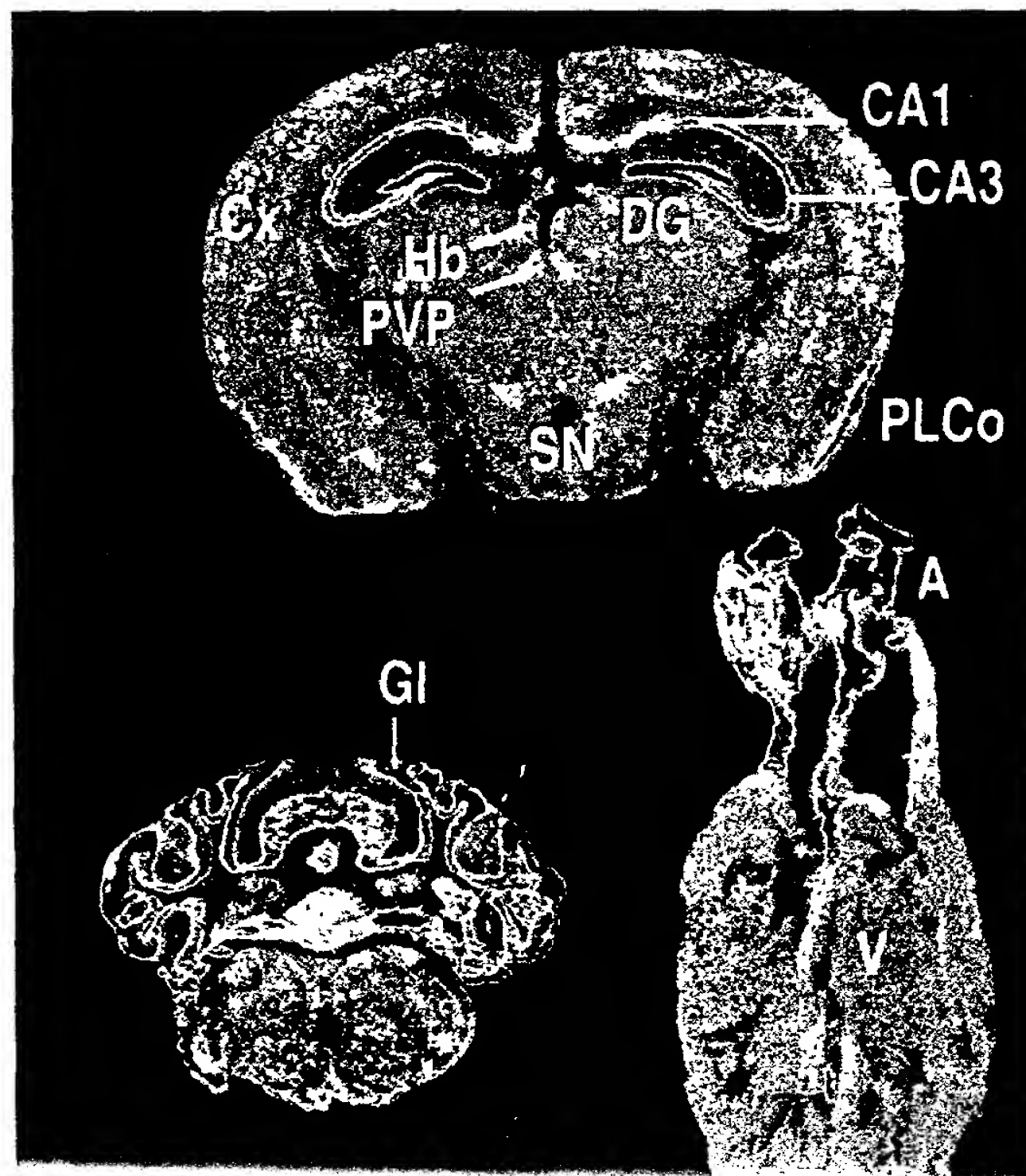


FIG. 11C

FIG. 11D

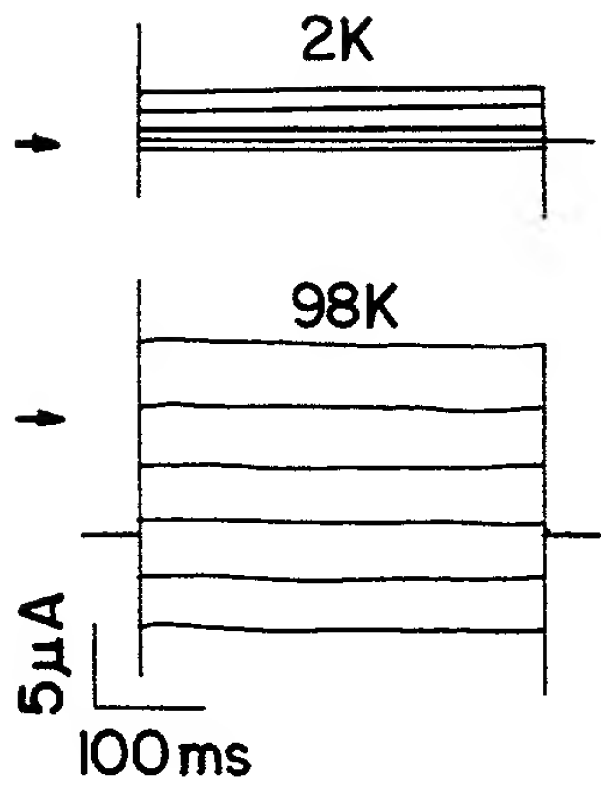


FIG. 12A

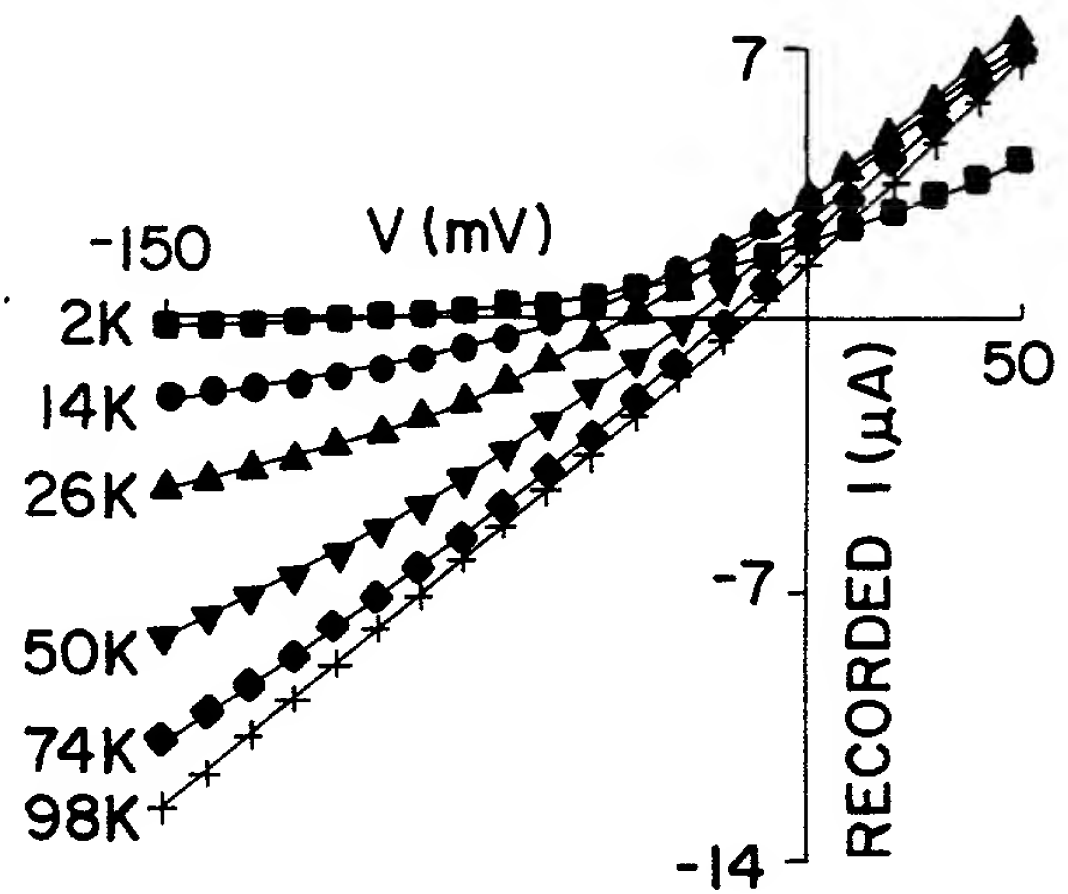


FIG. 12B

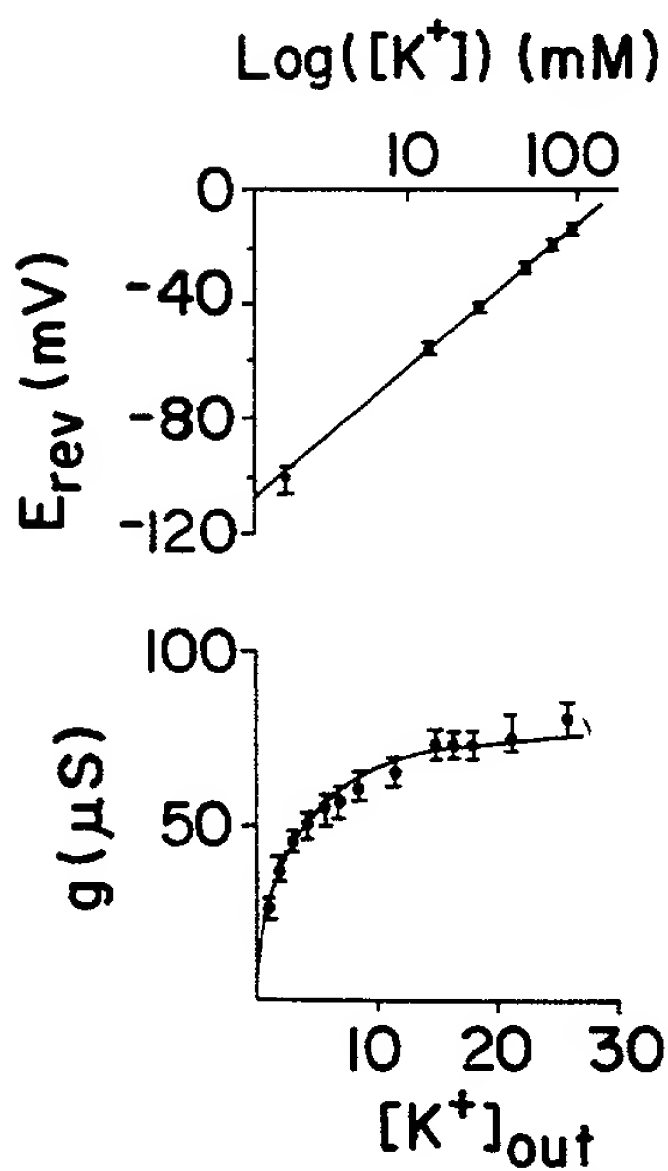


FIG. 12C

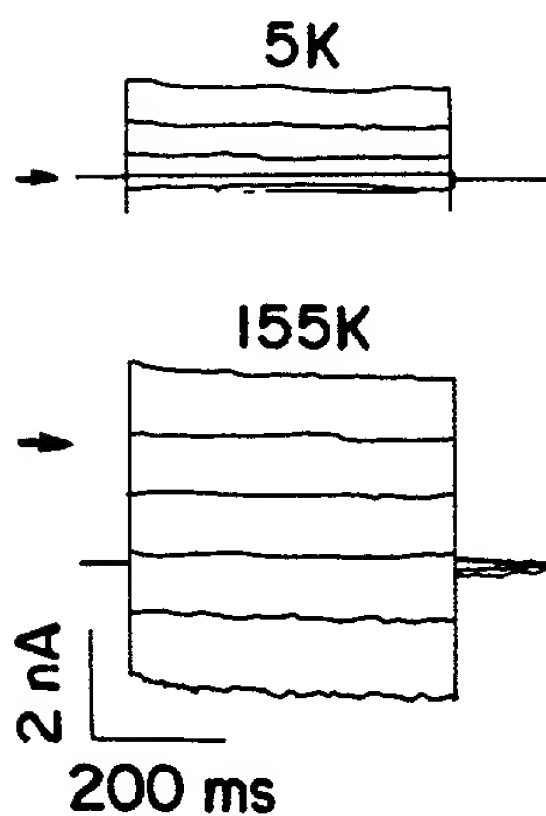


FIG. 12E

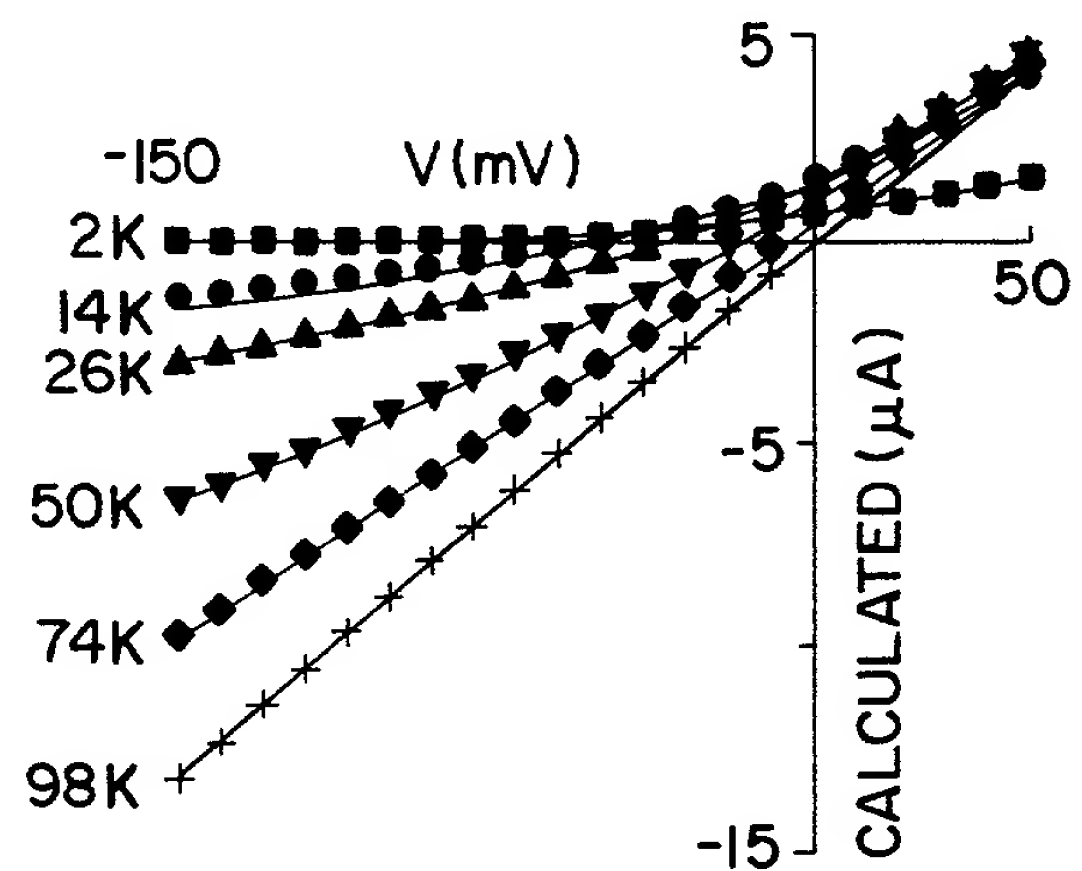


FIG. 12D

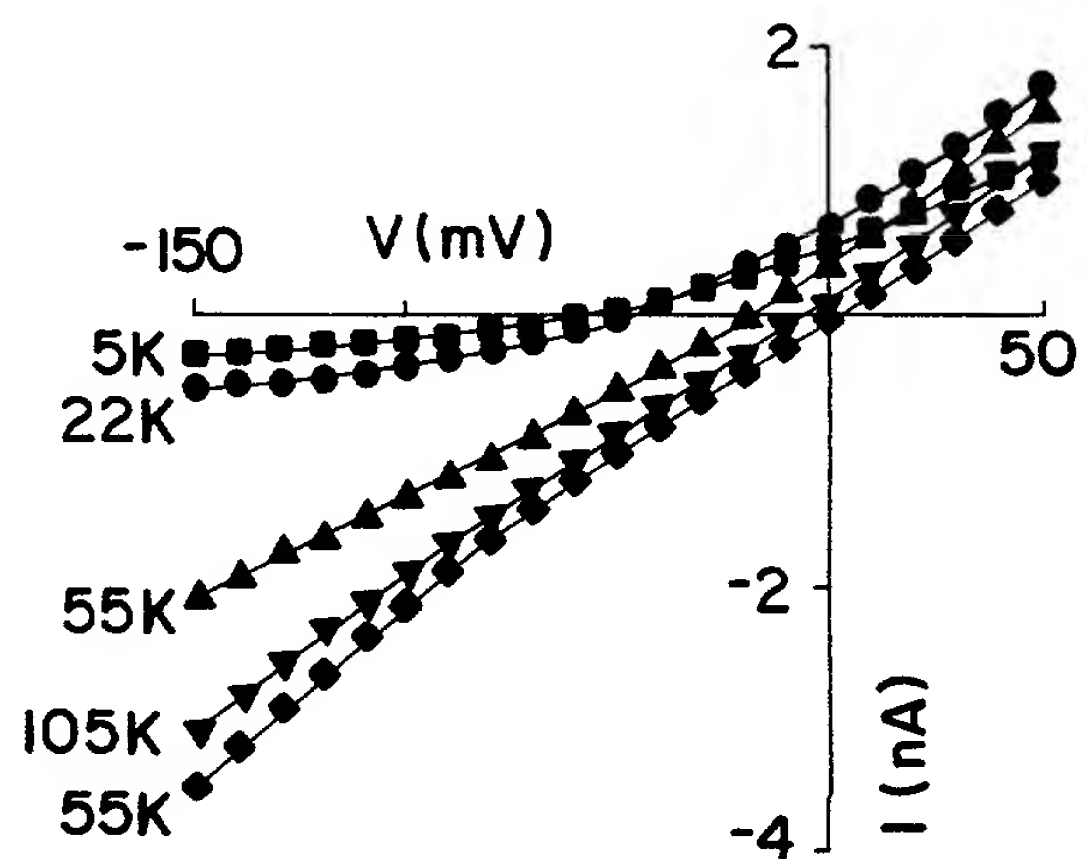


FIG. 12F

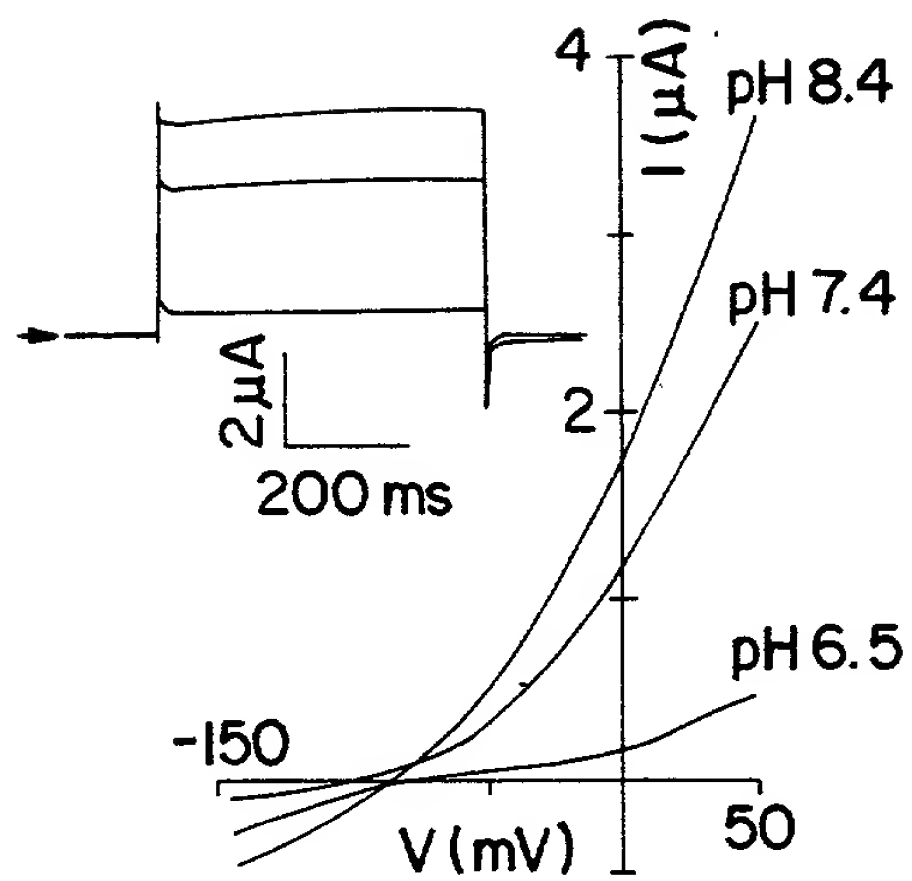


FIG. 13A

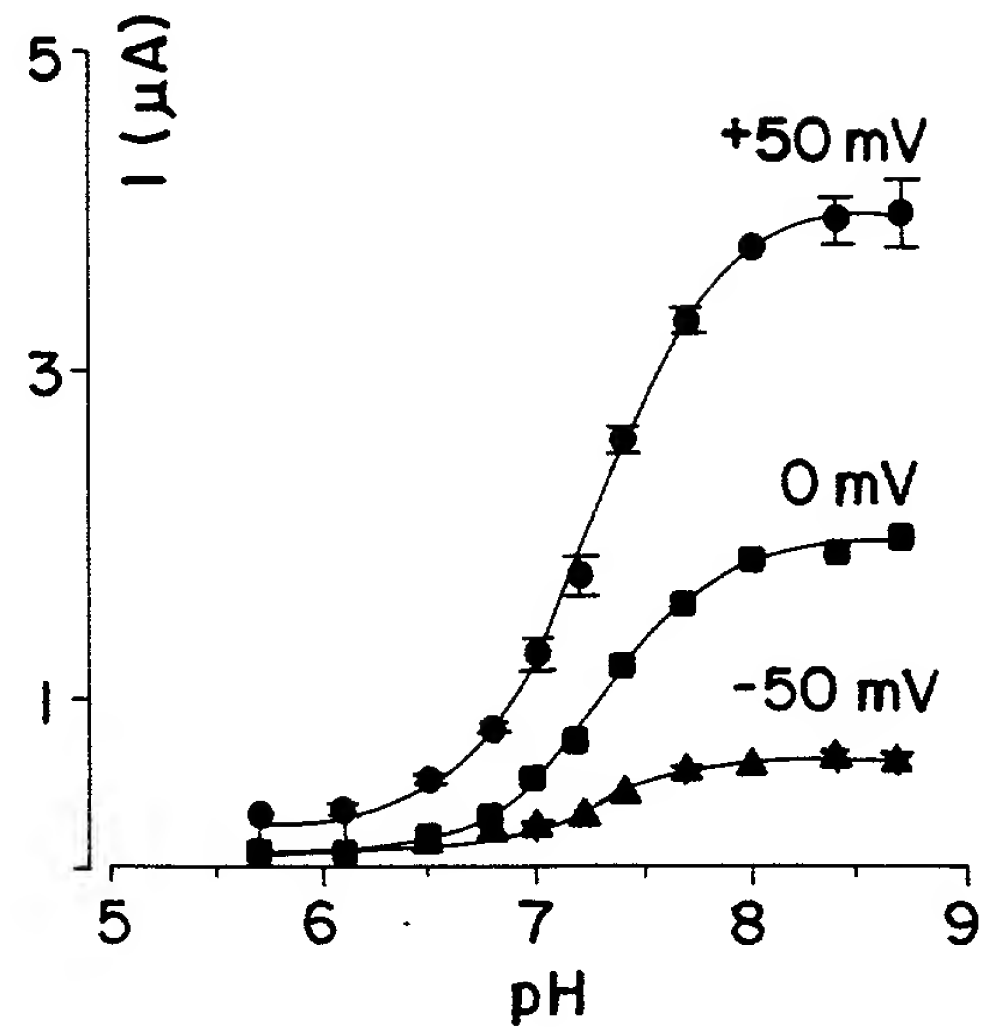


FIG. 13B

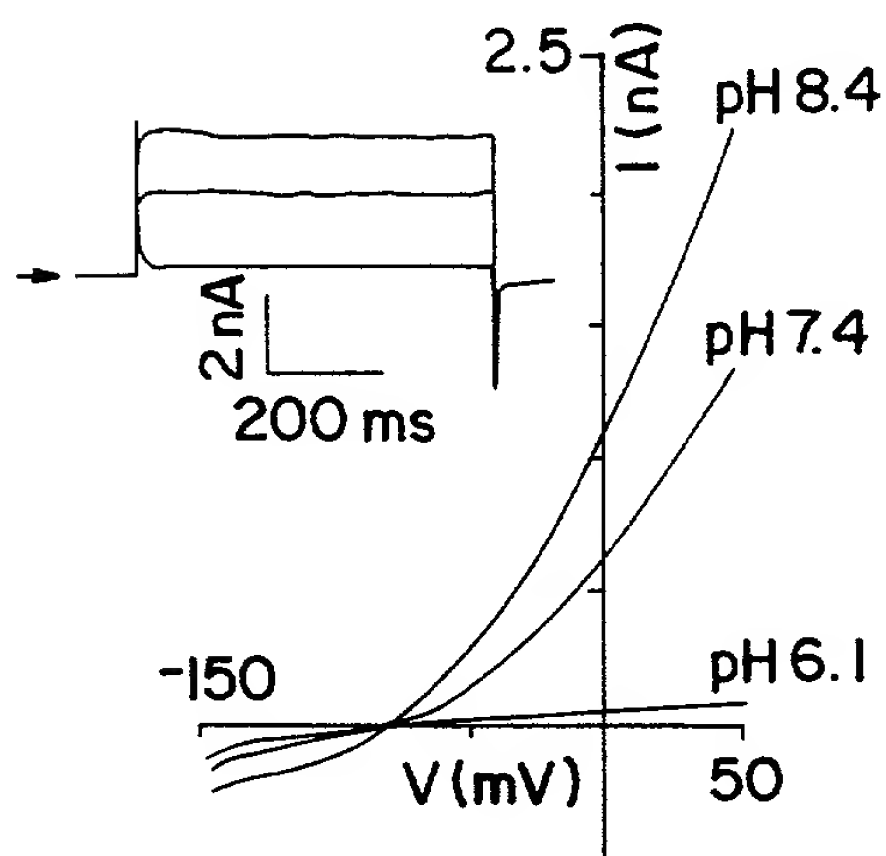


FIG. 13C

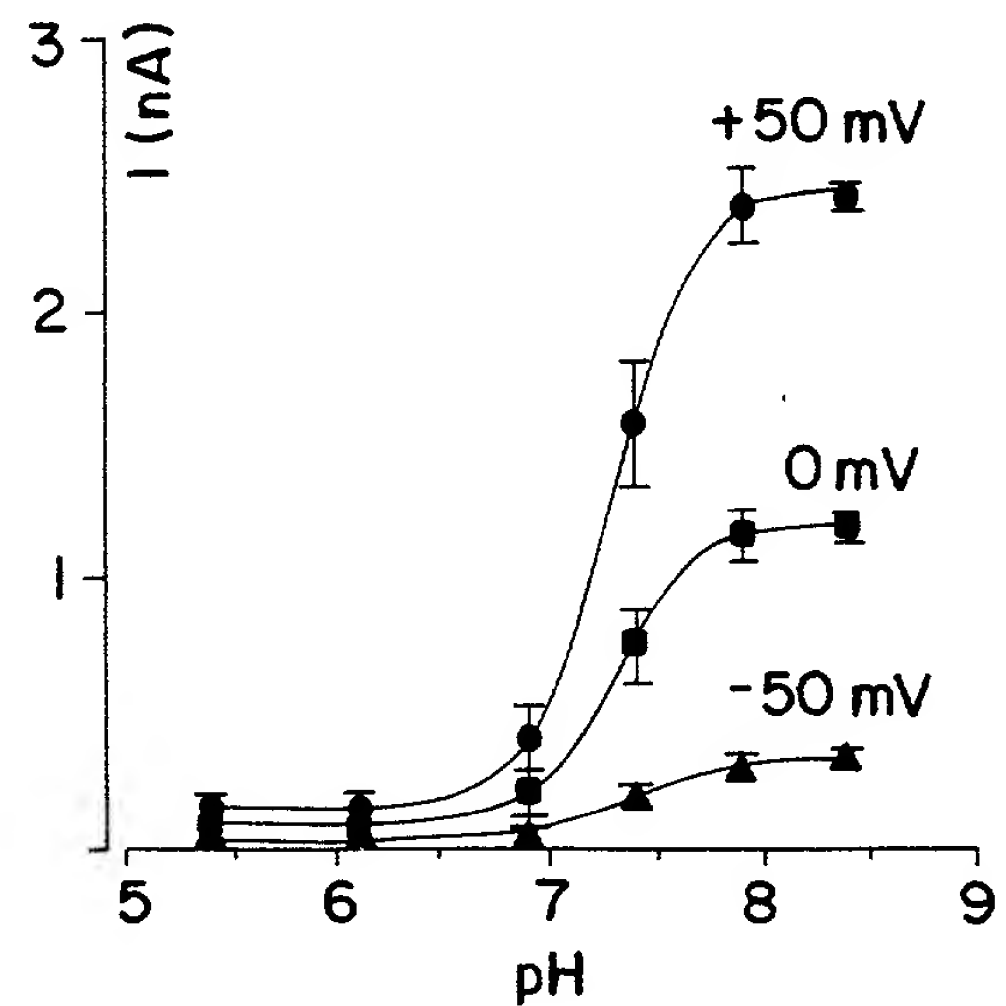


FIG. 13D